GPS - Depth - Water Temperature Video Overlay Unit with Keyboard Interface

Each GPS data row may be individually hidden or displayed as required using the F9 and F10 commands. Hidden rows cannot be on the same line as displayed rows or text. The position of each of the GPS data rows can be independently set using the F11 command. The position of the display area on the monitor can be controlled with the F3 command. This allows the visible text display to be moved up and down, left or right so that it can be positioned as desired on the monitor. The display position can be restored to its defaults with the F4 command. All settings are stored in the unit. Use F7 to select the desired time zone offset between -12 and +12. For example select -04 for EDT or +01 for CET. The time shown on the display will update as you select each offset if valid GPS data is being received. Use F8 to select the date in either the DD/MM/YY standard format and the North American MM/DD/YY format. The speed can be displayed in either knots or kilometres per hour selected using F7.

The text block has four lines of text, each of 26 characters, which can be displayed to identify and annotate the video footage. These four lines can be moved together as a block to any line position on the screen. Visible text cannot be placed on the same line position as a hidden GPS data row. The basic operation of the text overlay unit is straightforward. A flashing underscore cursor indicates the current screen position. This cursor can be moved around the text block by the keyboard cursor keys. The cursor will wrap around the text block left and right, top and bottom. If no key is pressed then the cursor will disappear after approximately 2 seconds. While the keyboard is being used the GPS display will pause. The video text overlay unit uses the standard UK keyboard mapping when ordered from the UK. Otherwise the standard US English keyboard mapping is used. There is no provision for the keyboard mappings of other countries or languages other than English. The alphanumeric characters in the QWERTY section of the keyboard and the keys of the numeric keypad can be typed directly to the screen as would normally be expected. Each alphabetic character key is normally lowercase. Uppercase characters can be typed by holding down the shift key or pressing the CAPS LOCK key. The keyboard's LED indicators will not be lit by the unit. To exit CAPS LOCK mode press the key again. If the unit remains in uppercase press the ESC key. To remove a character from the screen use the backspace key. This will replace the character immediately to the left of the current cursor position with a blank space and move the cursor to that position. The Delete key has no function. The Home and End keys move the cursor position to the left and right of the current line of the text block. The Return key moves the cursor to the beginning of the next line.

Keyboard Command Tables

Before using the SHIFT⇑, CTRL or ALT control keys, press the ESC key to clear any previous setting. When using the SHIFT⇑, CTRL or ALT control keys in conjunction with the alphabetic or the function keys the control key must be pressed and held first, then the required alphabetic or function key must be pressed and released, before the control key is released. If the SHIFT⇑, CTRL or ALT key is pressed or released simultaneously with another key then the correct control function may not be recognised by the unit. If you find that the unit behaves as if one of the SHIFT⇑, CTRL or ALT control keys were still being pressed, use the ESC key to clear the previous setting.

CTRL	F1	Set internal video mode
ALT	F1	Set external video mode
SHIFT	F1	Turn the text background setting off
	F1	Turn the text background setting on
CTRL	F2	Turn the text invert setting off
ALT	F2	Turn the text invert setting on
SHIFT	F2	Turn the text blink setting off
	F2	Turn the text blink setting on
CTRL	F3	Shift display down
ALT	F3	Shift display up
SHIFT	F3	Shift display left
	F3	Shift display right
CTRL	F4	Unused
ALT	F4	Unused
SHIFT	F4	Unused
	F4	Reset display X - Y position

Keyboard Command Table 1.

CTRL	F5	Set default layout 4
ALT	F5	Set default layout 3
SHIFT	F5	Set default layout 2
	F5	Set default layout 1
CTRL	F6	Hide the text lines
ALT	F6	Clear the text lines
SHIFT	F6	Display the text lines
	F6	Move text lines down 1 line
CTRL	F7	Display speed as knots
ALT	F7	Display speed as kph
SHIFT	F7	Unused
	F7	Advance UTC time zone offset
CTRL	F8	Unused
ALT	F8	Unused
SHIFT	F8	Display Date as DD/MM/YY
	F8	Display Date as MM/DD/YY

Keyboard Command Table 2.

CTRL	F9	Display GPS data row 4
ALT	F9	Display GPS data row 3
SHIFT	F9	Display GPS data row 2
	F9	Display GPS data row 1
CTRL	F10	Hide GPS data row 4
ALT	F10	Hide GPS data row 3
SHIFT	F10	Hide GPS data row 2
	F10	Hide GPS data row 1
CTRL	F11	Move GPS data row 4 down
ALT	F11	Move GPS data row 3 down
SHIFT	F11	Move GPS data row 2 down
	F11	Move GPS data row 1 down
CTRL	F12	Unused
ALT	F12	Hide all GPS data rows
SHIFT	F12	Display all GPS data rows
	F12	Toggle GPS data row background
	ESC	Clear SHIFT, CTRL, ALT and CAPS settings

Keyboard Command Table 3.

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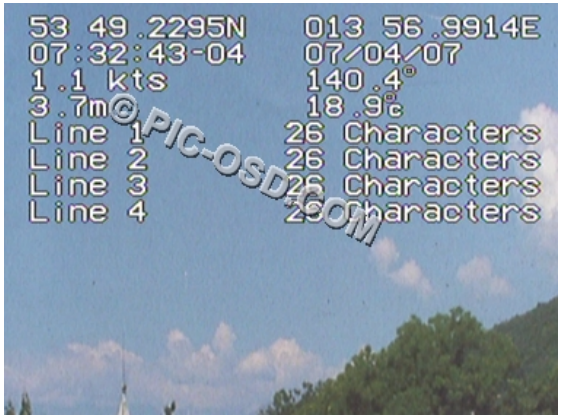
GPSBOXKBDPLUS-XDT

GPSBOXKBD-XDT



Power supply

The GPSBOXKBDPLUS-XDT unit without keyboard draws approximately 150mA. The GPSBOXKBD-XDT unit draws approximately 50mA. Both versions are designed to be powered from a 9 - 12V DC regulated power supply. The power supply used should be capable of providing 300 - 500mA according to the requirements of the keyboard and camera being used with the overlay unit. The keyboard used should not have a current draw greater than 200mA. It is recommended that the keyboard is only connected to the unit when required for setting the display.

WARNING! It is important to ensure correct connection of the video text overlay to the power supply or battery. Failure to observe correct power supply connection polarity may result in the electronic failure of the unit or in the battery bursting to cause personal injury and damage. The power supply **must** have a regulated output. Connection to a non-regulated power supply, in particular direct connection to the cigar lighter socket of a vehicle, can cause the unit to fail. The warranty is void in such a case.

Connections

The video in and video out connections should be made before powering the system up. The unit requires a 9 - 12V DC regulated power supply connected via the 2.1mm power connector on the unit's front panel. The unit has a simple on / off power switch. There is no internal battery compartment. The active antenna supplied with GPSBOXKBDPLUS should be attached to the connector on the front panel of the enclosure. The antenna should be situated in a location with a relatively clear view of the sky. If testing the unit indoors this should be at least a window sill, preferably south facing. Optimal accuracy will result from the antenna being placed with a clear 360° view of the sky. Avoid mounting the units close to potential sources of electrical interference such as engine ignition coils, alternators or radio transmitters.

When required a PS/2 compatible USB keyboard should be connected to the socket on the front panel of the enclosure. The unit will only operate with standard USB keyboards that have PS/2 functionality. It will not operate with a USB only keyboard which requires PC operating system support. The keyboard is only required to set the screen display format and text. It is not needed for the GPS display function once the desired display has been set. The keyboard should be removed when not in use. If the keyboard is left connected when the unit is powered off, random characters can be generated which may disrupt the display set up.

The GPSBOXKBD-XDT unit is designed to be used with an external GPS receiver (GPSR). The unit is compatible with any GPSR that transmits GPS data according to the NMEA 0183 standard RS232 serial data format at 4800 baud, 8 data bits, no parity, 1 stop bit with a once per second update rate. The GPSR's PC data cable should be connected to the upper, male DB9 serial connector labelled GPS in. Before connecting your GPSR to the unit please ensure that it has been correctly set up to transmit NMEA data. If you are doing this for the first time refer to the GPSR manufacturers instructions for the method to select NMEA output. If in any doubt we recommend that you connect your GPSR to a PC and open a PC terminal window, settings as above, and check the output data format. You may need to individually select the output of each sentence or a number of data sentences may be transmitted by your receiver once NMEA output is enabled. The GPSBOXKBD-XDT unit requires the $XXRMC data sentence to generate the display of position, time, date, speed, and heading. The $XXVTG data sentence is optionally required to display the speed in kilometres per hour. The output of the depth transducer should be connected to the lower male DB9 connector, labelled AUX. The depth in metres displayed by the GPSBOXKBD-XDT unit is taken, in order of precedence, from either the $XXDBS, $XXDBT or $XXDPT data sentence. The unit will default to display the depth from the $XXDBS if this is present. If $XXDBS is not present then the depth from $XXDBT will be displayed if this is present, otherwise $XXDPT would be displayed. The water temperature in degrees centigrade is taken from the $XXMTW data sentence if this is present. The unit ignores all other data sentences so it is recommended that all other NMEA data sentences are disabled.