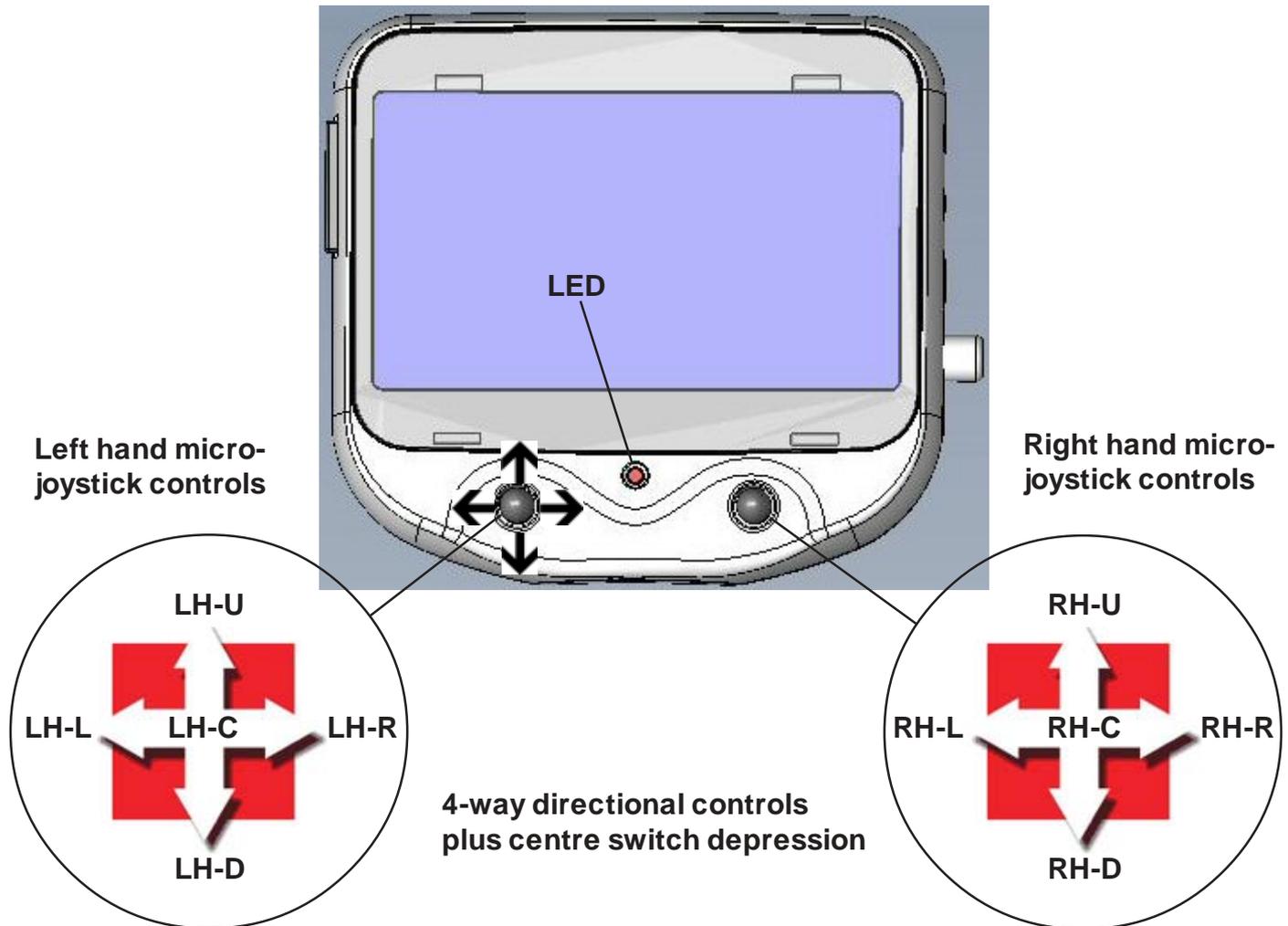# PVA User Guide

1. Battery Charging

- Plug in 5V PSU (via 1.35mm DC plug) and **switch ON** mains.
- LED will **flash** during charge cycle.
- When fully charged the LED will stay **ON**.
- Charging takes **3-4 hours** from a fully charged state (longer with the PVA-120).
- Unit can be **operated** while battery is charging (but charging then takes longer).

LED

Left hand micro-joystick controls

Right hand micro-joystick controls

LH-U

LH-L   LH-C   LH-R

LH-D

RH-U

RH-L   RH-C   RH-R

RH-D

**4-way directional controls
plus centre switch depression**

2. Switch ON

- **Press and hold** down RH-C button until LED comes ON and unit beeps.
- Splashscreen **logo** will appear after a couple of seconds.
- **Wait 30 secs** while Linux boots up.
- Unit will **beep 4x** if no memory device (SDHC card or USB memory stick) is inserted.
- Live **video** will appear on screen immediately after booting if video source is connected.
- The **main menu** will appear if no video source is detected.

3. Still Image and Movie capture

- Press LH-C to **freeze** live image (**STILL** appears at top right). Press again to **capture** JPEG.

Note: unit will beep 4x if you try to capture with **no memory card** inserted.

- Press LH-L to return to live video from **frozen** if no capture required.
- Press RH-C button to **start** MPEG4 movie recording (**MOV** appears flashing at top right).
- Press same button again to **stop** recording (live video remains but OSD disappears).

4. Quickview

- Press RH-U button to display **most recent JPEG** captured (press RH-L to return to live video).
- Press RH-D button to display **most recent MPEG** (press RH-L to return to live video)
- If SD card is empty then "**no image files**" is displayed in message bar at bottom of screen.

5. Viewing Images in Thumbnail Gallery

- Move right hand (RH) joystick RIGHT to display **thumbnail image gallery**.
- Move RH joystick DOWN to visit **Page 2** of gallery (etc.).
- Move RH joystick UP to return to **Page 1** of gallery.
- **Scroll** around gallery using LH joystick.
- Thumbnail image **border colour** indicates file type (red = movie, blue = JPEG).
- Press LH centre button to expand thumbnail to **full screen** size.
- Press LH centre button again to **return** to gallery.
- Move RH joystick LEFT to invoke **DELETE** function.
- Press RH CENTRE button to delete selected file.
- Press RH centre button to **Exit** gallery and return to live video.

Notes:

1) To view **MPEG4** movie clips you need to download and install a **S/W viewer** from the link below;

http://smplayer.sourceforge.net/downloads.php?tr_1ang=en

Select the first option and install. This is necessary because **Windows Media Player** does not include an **MPEG4 codec** as standard and will not necessarily find the right one if it searches.

2) If you try to access the gallery (using RH-R) when the **SD card is empty** then "**no image files**" is displayed in the bottom message bar followed by 3 beeps before returning to live video.

6. Menus

Press LH-R to display the main menu options as follows:-

Language, Clock Setting >	> selects *Language* and *Clock Set* options.
On Screen Caption >	> selects *OSD* and text editing options.
LCD Settings >	> opens *Image Controls* menu for setting image *Brightness*, *Contrast*, *Saturation* and *Hue*.
Regular Image	> Displays **whole** input image at centre of the OLED screen.
Zoom Image	> expands image to **full width** of OLED while **cropping** top and bottom of image (but still displays OSD Time/Date).
Power Down (RH-C) >>	> hold down for 3 secs to **switch OFF** system.

Menu options can be **highlighted** using the LH-U or LH-D keys and **selected** using either the LH-C or LH-R keys. Menu selections are **non-volatile** and are retained in memory after PowerDown.

Note: operation **wraps** at top and bottom of Main menu and sub-menus.

6.1 Language, Clock Set

Press LH-R or LH-C to select this sub-menu:

Language, Clock Setting	>	English		> selects *ENGLISH* language option
On Screen Caption	>	German		> selects *GERMAN* language option
LCD Settings	>	Spanish		> selects *SPANISH* language option
Regular Image		Italian		> selects *ITALIAN* language option
Zoom Image		Clock	>	> selects *CLOCK SET* option
Power Down	(RH-C) >>			

Use LH-U or LH-D to **highlight** the option required then LH-R or LH-C to **select**.

If no selection is required then use LH-L to **return** to main menu without making any changes.

If the *Clock Set* option is selected a **setup screen** is displayed as follows:

```
System Information
PVA SW TI 365 rev. GLt08g13d3h14a5p_400AR
MSP 430 rev09
```

```
yyyy.   mm.  dd.  hh:  mm:  ss
2012.   0 1.  2 7.  1 4:  5 8:  50
```

Set **Date** and **Time** using LH-R and LH-L keys to **highlight** the settings and the LH-U and LH-D keys to **change** them.

Pressing LH-C **saves** the setting and returns you to live video or the Main menu.

If **no editing** has been done to the Date and Time fields when you press LH-C to exit then **no changes** occur to the settings.

The **top line** of **System Information** shows data relating to the software build of the DM365 application code. It should be referenced before attempting to upgrade the PVA's application code. The **second line** shows the revision level of the MSP430 microcontroller firmware.

6.2 On Screen Caption

Selecting this option with the LH-C or LH-R key brings up the following sub-menu:-

> OSD switched **ON**

> OSD switched **OFF**

> select **text entry** mode

OSD

On Screen Caption or **On Screen Display** (OSD) generally refers to text characters **overlaid** on the live video image and which are **saved** with the image. The PVA can display an OSD such as the following at top left of the screen for showing the current Date, Time and file count:-
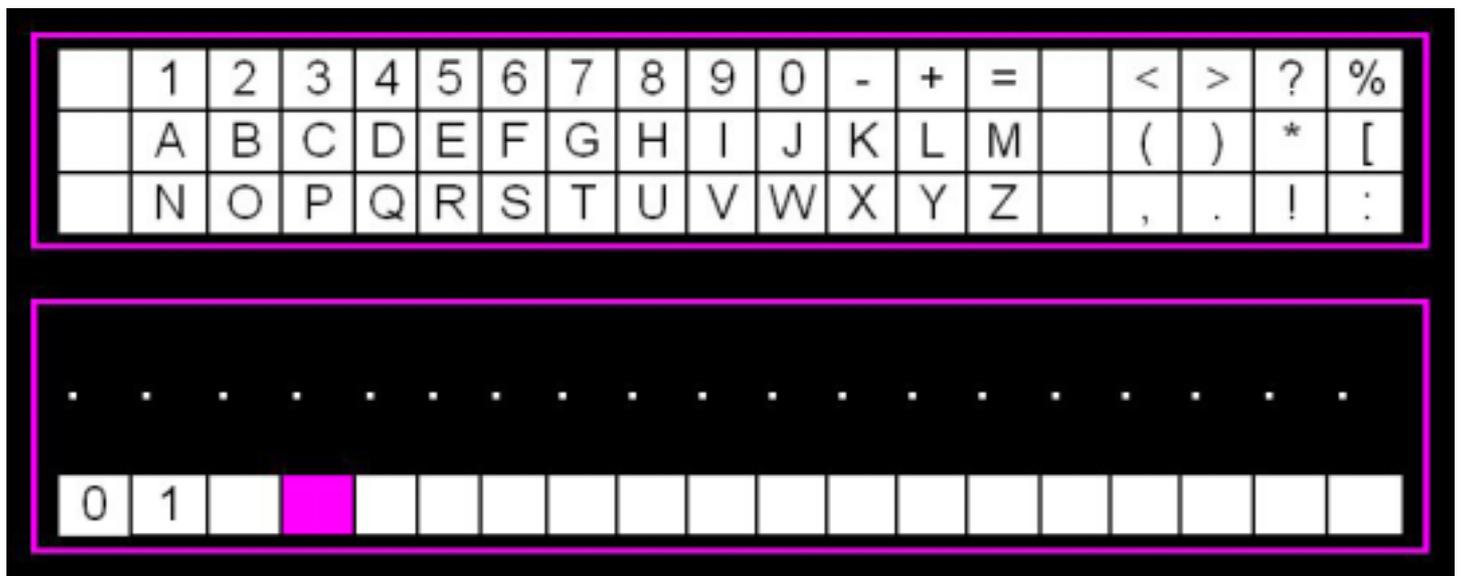
01/24/12 16.42.26

07

First line displays current **date** (American format) and **time**.

Second line shows **File count** on the SD card. Its the number of the next file to be saved. The line is **blank** if no SD card is installed and it shows **01** if an SD card is present but **empty** with no files saved.

The OSD display defaults to **ON** so it is normally displayed on-screen but it can be switched **OFF** by selecting this option from the sub-menu. It must be **ON** for **text** to be added (see below):

Enter Text

If you select this option then the following screen appears:-

This enables you to enter up to **19 characters** which appear on screen **after** the file count number to describe the image you want to save. The OSD must be **ON** for text to display.

Using the Text Editor

1. The text string is **recalled** into the lower text line each time the text editor is opened allowing you to **edit** previously created text. This text line is **volatile** and will only be stored while the PVA is powered on. Cycling the power will **clear** the text line.

2. On entry the cursor appears at the **start** of the text line. The entire operation is silent with the key beeps disabled until you exit the text Editor. The first 3 positions are **reserved** for the file count number, which you cannot edit, which appears at the **end** of the filename when saved.

3. The cursor is **positioned** along the text line using the LH-L and LH-R keys, auto wrap is supported.

4. To enter the Keypad area use the LH-U key. **Dual** cursors are displayed, one at the current text line position and the other over the character to be selected.

5. To **move** around the Keypad use the LH-L, LH-R, LH-U and LH-D keys, auto wrap is supported.

Note: Vertical movement encompasses **both** the Keypad and text line. So if you are on the Keypad top line then pressing LH-U will wrap you to the text line below and only **one** cursor is then displayed. Similarly if you are on the text line then pressing LH-D will wrap you to the Keypad top line with **dual** cursors appearing.

6. Character selection. In the Keypad press LH-C to **select** the character under the cursor which will then be placed in the text line below at the **current** cursor position which is then incremented along. In the text line pressing LH-C will **overwrite** the current cursor position with a space character then increment the cursor position.

8. To **exit** the Text Editor and display the text line **on-screen** press RHC.
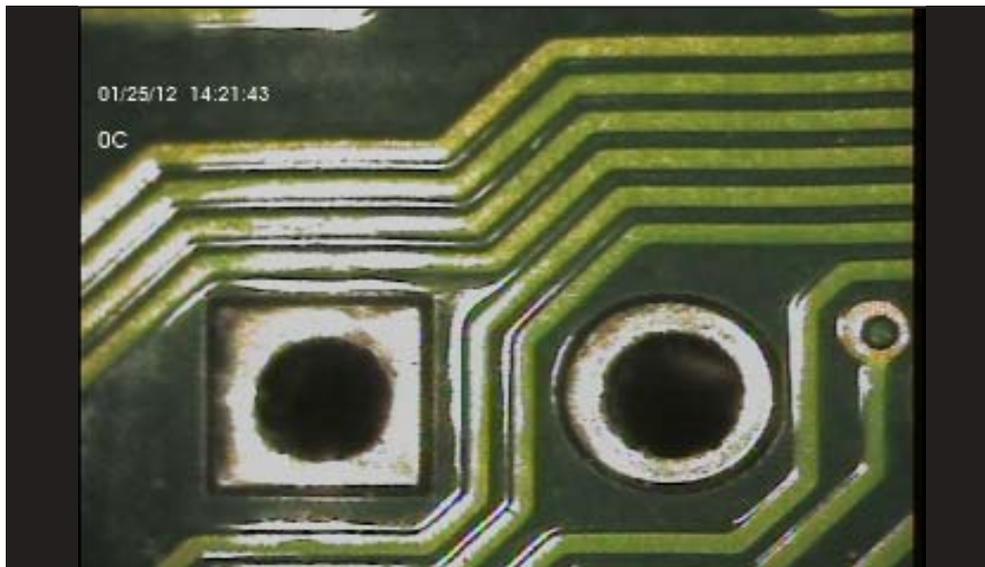

6.3 LCD Settings

If you select this menu option then the following screen appears:-

The screen area **above** the controls menu displays the raw video image which responds to the image controls in **real time** and should be used to get the right setup. The menu area itself is semi transparent but **do not use** the video image appearing through this menu as a reference. Use the LH-U and LH-D keys to **select** the required control and then use the LH-R and LH-L keys to **adjust** each parameter as required (they default to 50% as shown). Use LH-C to **save** the settings and return to live video. The settings are non-volatile and remain after power-down.
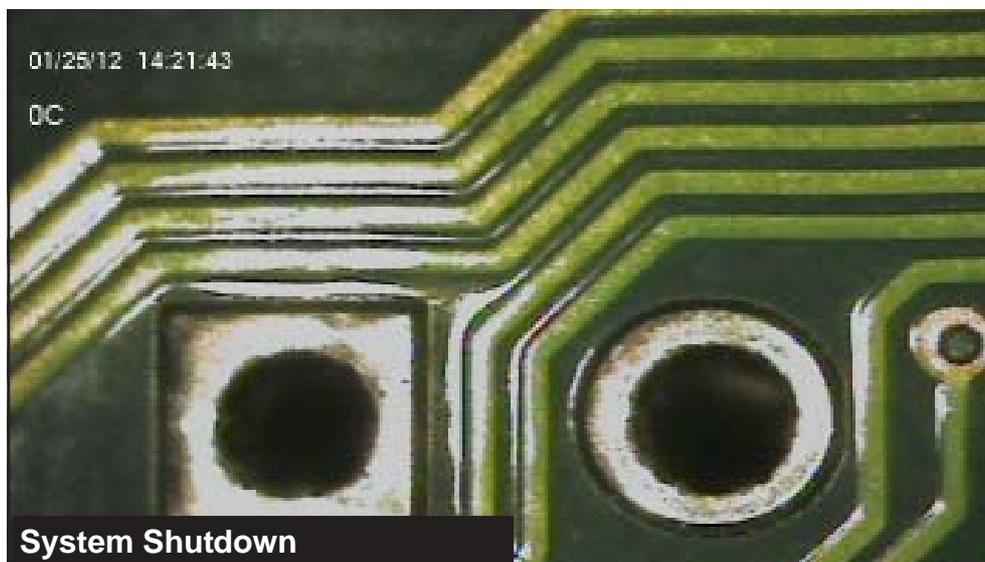
Note: If the input video format is **PAL** then the "Hue" control should have no effect.

6.4 Regular Image

This option displays the **whole** of the input video image at the **centre** of the OLED display which has an aspect ratio (A/R) of 16:9. Most industrial video cameras have an A/R of 4:3 which means the image will be displayed as above with **blank bars** at the side of the image. So although you are not using the **entire** OLED screen area you do **not lose** any of the input image and therefore you can see, for example, any OSD text embedded at top or bottom of the input image.
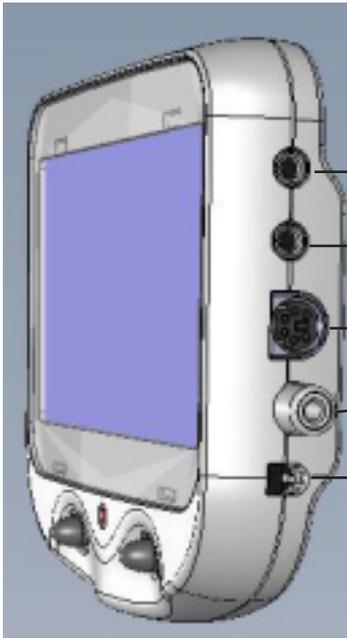
6.5 Zoom Image

This option uses the **full width** of the OLED screen but top and bottom of the input image are **cropped**. This means any OSD text overlaid at top and/or bottom of the input image may not be displayed. However, the correct **aspect ratio** of the input image will be maintained.

6.6 Power Down
This option turns OFF the system in the normal way. Highlight this option using the LH-U or LH-D keys then hold down RH-C for 3 secs. The system will beep rapidly 4x, the image will freeze and the left message bar will show ⎢System Shutdown⎥, see above. After a further 4 secs the system will beep 3x and shutdown. To re-boot go to **2.**
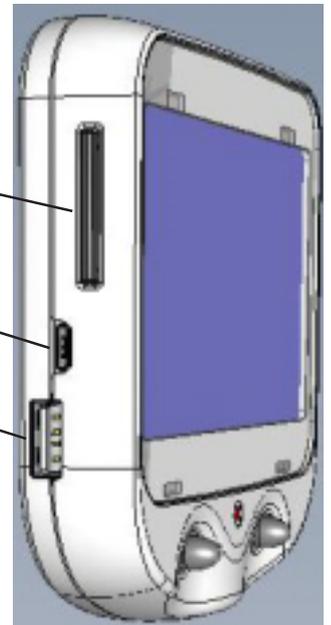
Note: If at any point the system fails to respond to key inputs and is effectively frozen then its possible to recover by holding down RH-C for 4 secs. to do a **hard reset**. To re-boot go to **2.**

7.0 Connectors

Function	Specification	Comments
AUDIO OUTPUT	3.5mm Jack	Headphone/Speaker
AUDIO INPUT	3.5mm Jack	Microphone
VIDEO INPUT	4-pin mini-DIN	S-Video or Composite
VIDEO OUTPUT	Phono (RCA)	Composite only
DC POWER	1.35mm DC	5V operation and Battery charging

Comments	Specification	Function
Full-size SD card supported Requires Card Reader	SDHC Card	**MEMORY CARD**
Requires USB cable and Windows S/W driver	micro-USB Type-B	**PC UPLOAD**
FAT-32 File System supported for Memory Sticks >2Gb	USB 2.0 Type-A	**MEMORY STICK**
Also supports USB 2.0 Camera input if suitable Linux driver installed.		

8.0 Specifications

Screen Type:	Amorphous Organic Light Emitting Diode (AMOLED)
Screen Size	4.3" diagonal
Screen Aspect Ratio:	16:9

Video Input:	S-Video via mini-DIN cable, Composite with S-Video/Composite adapter
Video Output:	Composite via RCA (phono) type cable

Audio Input:	600 ohm line impedance
Audio Output:	600 ohm line impedance

SDHC Card:	Full-size (not micro) up to 32Gb (requires SDHC card reader over 2Gb)
USB Memory Stick:	USB 2.0 Type-A up to 32 GB
File Formats:	Still images - JPEG
	Movie clips - MPEG4

Power Input:	5V DC at 3A for mains operation and/or battery charging
Battery:	3.7V, 2600mAH Li-on, single cell (except PVA-120)