XH300AS Crosshair Generator

Users Guide

Rev 1.3

    This is the user's guide for the Micrio Associates Inc. XH300AS crosshair generator. This document contains the complete product description and operating instructions.   This describes the new firmware, Revision 1.2.   The new revision has new cursor types and a new menu for selecting the various features.

XH300AS

Table of contents

1. Introduction

The XH300AS is the most versatile, easy to use, and cost effective video crosshair generator available on the market.   The XH300AS crosshair generator is capable of superimposing a video cursor image on an existing video stream.   The cursor can chosen from a list of available cursors selected through a menu.   Single or double crosshair, a circle, or a single line cursor are available.

The incoming video is fed into the connector labeled "Video In".   The video input can be in either NTSC or PAL format.   The resulting output video is available at the connector labeled "Video Out".   The output video is in exactly the same form as the incoming video except for the superimposed video generated by the XH300AS.

The XH300AS supports five different cursor types: crosshair, double crosshair, circle, single vertical line, and single horizontal line.   The firmware generates a crosshair that is superimposed of the existing video stream.   While adjusting the cursor position the setting is displayed the bottom of the screen.   When the adjustment is complete the position is saved in non-volatile memory.   The cursor position will be restored when power is applied.

The new cursors are to support users that want independent controls for the horizontal and vertical cursors.   Using two XH300AS crosshair generators connected in series and one set for a vertical line and to other for a horizontal line the user will have two controls.   In this mode you need not press the knob to make adjustments.

2. Specifications.

- Video standards supported: NTSC, PAL.
- Power requirements: 8 to 15 Volts, 80 mA.
- Input/output Impedance: 75 Ohms
- Cursor types: Crosshairs, circle, and single line.
- Control: Rotary encoder with press switch.
- Video connectors   RCA jacks.
- Power connector.   2.1 mm DIN   , center pin positive.
- ROHS   Lead free.

3. Menu system.

The XH300AS menus allow you to select all features of the crosshair generator.   To enter the menu system press and hold the knob down for about 15 seconds.   When the message "Select cursor style" appears you are in menu mode and you may release the knob. Rotating the knob will step through the cursor style selections.   To move to the next menu press the knob momentarily.   The message "Select cursor color" will appear.   Rotate to select the color, black or white.   Advance through each menu selection in the same way; press the knob momentarily.   If you do not move the knob for some time, menu mode will time out and return to normal mode and discard your choices.

Each menu selection is described below.

3.1   Select cursor style.

There are five different cursor types that can be selected.   When in the cursor style selection menu rotating the knob will cycle through all of the possible cursor choices.   Each cursor type is described below.

3.1.1   Single crosshair cursor.

The single crosshair is composed of a single vertical line and a single horizontal line. The position of each line can be adjusted independently. During adjustment, the horizontal and vertical positions will be displayed in the status line at the bottom of the screen. The cursor position cannot be changed while in menu mode.

3.1.2 Double crosshair cursor.

The double crosshair is composed of two vertical lines and two horizontal lines. The position of each line can be adjusted independently. During adjustment the horizontal and vertical positions will be displayed in the status line at the bottom of the screen. The cursor position cannot be changed while in menu mode.

3.1.3 Circle cursor.

The circle cursor is a single circle that can be moved horizontally and vertically as well as changing the diameter. The circle settings cannot be changed while in menu mode.

3.1.4 Single vertical line.

This is a single vertical line. This cursor operates differently than the crosshair cursors. It will be further explained in a later section. It cannot be adjusted while in menu mode.

3.1.5 Single horizontal line.

This is a single horizontal line. This cursor operates differently than the crosshair cursors. It cannot be adjusted while in menu mode.

3.2 Select cursor color.

This menu allows the selection of the cursor color, either black or white.   As the knob is rotated the text and the cursor will change to the current selection.   Press the knob to advance to the next menu selection.

3.3   Save settings?

Rotating the knob allows you to choose to "Save" the current settings or "Discard" them. If you want to change some of your earlier choices you can cycle back through the menu system in the next menu selection.

3.4   Exit setup?

You can choose to leave the menu system and return to normal operation.   If you choose "Yes" it will exit the menus and save your selections or discard them depending on your choice in the previous menu.   If you choose "No" you will cycle back through the menus from the top.

3.5 Menu lockout.

This is not a menu mode but rather a means of disabling the menu system.   You might want to disable menus after setup to prevent users from making inadvertent changes in the settings.   Disabling the menus achieved by soldering a jumper between pads 5 and 6 on DIP connector X6.   You must connect only these two pads, 5 and 6, and no others.   Other pads have the unregulated supply voltage on them that will destroy the chip if connected.   This DIP connector has no other features that can be selected.   There are no other features handled in this way, all other features are handled through the menus.   Remove the jumper to restore the menus.   The XH300AS shipped without the jumper in place.
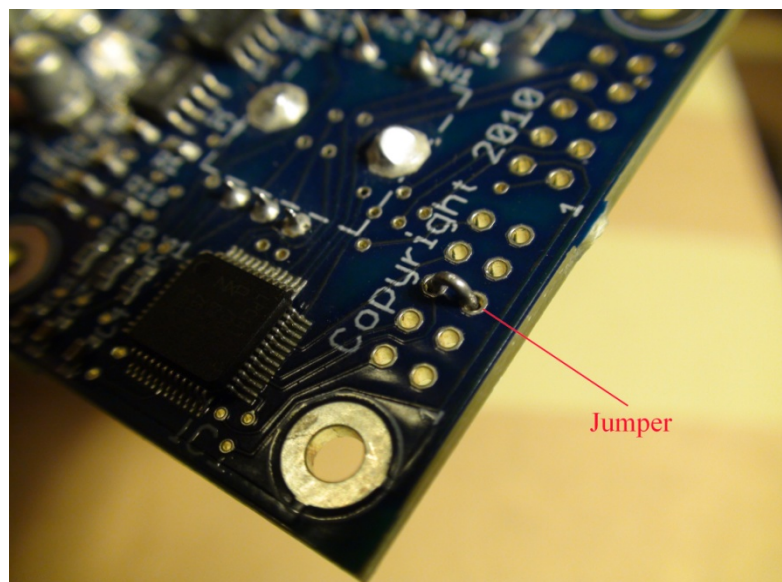

Menu lockout jumper.

4. Cursor types.

4.1   Single crosshair.

This is a single vertical and a single horizontal line.   The position of each line can be adjusted using the knob.   The cursor adjustment mode is entered by pressing the knob momentarily.   The first press will cause the horizontal cursor to flash.   Rotating the knob will move the horizontal line up or down.   When the horizontal cursor is at the desired position, press the switch again momentarily.   The vertical cursor will begin to flash. Adjust the vertical cursor to the desired position.   To exit the adjustment mode press the switch again, the rotary switch will become inactive and the current settings will be saved in permanent memory.   When the settings are saved a message "Saved" will momentarily appear.   If you do not do the final press the current settings will be saved after a timeout.
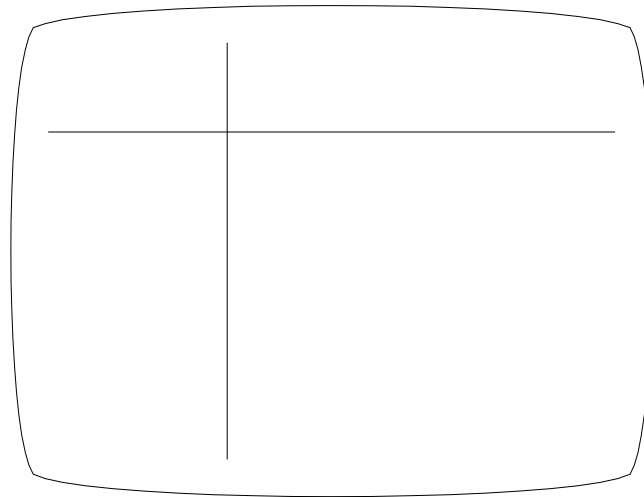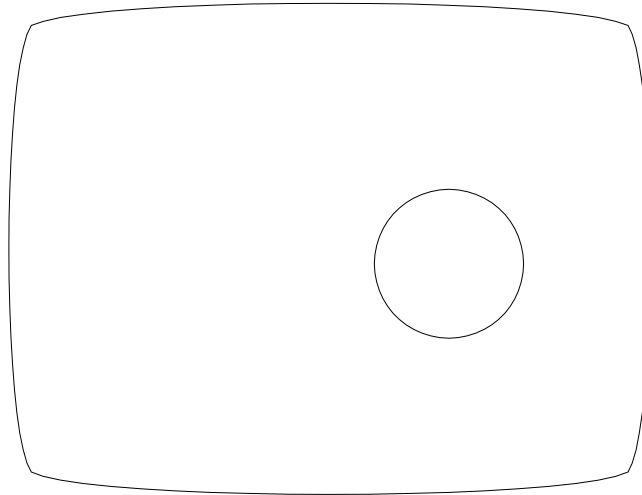
Single cursor.

4.2 **Double Crosshair.**

The cursor adjustment mode is entered by pressing the switch momentarily.   The first horizontal cursor will begin to flash.   Rotating the knob will move the cursor back and forth.   When the first horizontal cursor is at the desired position, press the switch again.   The second horizontal cursor will begin to flash and can be adjusted.   With another press the first vertical cursor will begin to flash.   Adjust the first vertical cursor to the desired position. Press again and the second vertical will flash and can be adjusted.   To exit the adjust mode press the switch again, the rotary switch will become inactive and the current settings will be saved in permanent memory.   If you do not do the final press the current settings will be saved after a timeout.
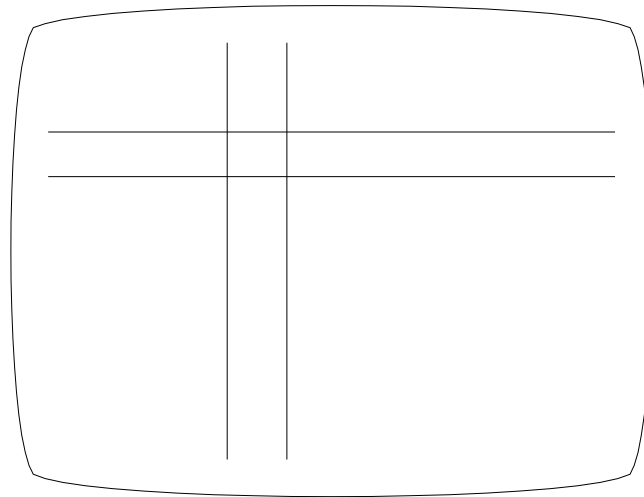
Double cursor.

4.3   Circle cursor.

    The circle cursor is a single circle that can be moved horizontally and vertically as well as have the diameter changed.   The cursor adjustment mode is entered by pressing the switch momentarily.   The first press allows the circle to be moved vertically.   Rotating the knob will move the circle up and down.   When the circle is at the desired position, press the switch again.   Now the horizontal position can be adjusted.   Press the switch again and the diameter of the circle can be adjusted.   To exit the adjust mode press the switch again, the rotary switch will become inactive and the current settings will be saved in permanent memory.   If you do not do the final press the current settings will be saved after a timeout.

Circle cursor.

4.4   Single vertical line.

This cursor is a single vertical line that can be moved horizontally across the screen.   It operates differently in that you do not need to press the knob to move the cursor.   Rotating the knob at any time moves the cursor position.   After a timeout period the current position will be saved in permanent memory.   This position will be retained after power is cycled.
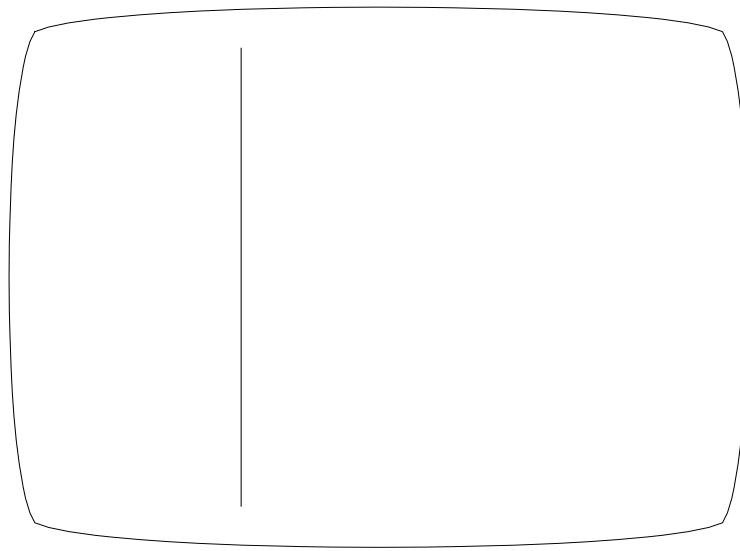
Single vertical cursor

4.5 Single horizontal line.

This operates in the same manner as the single vertical line.
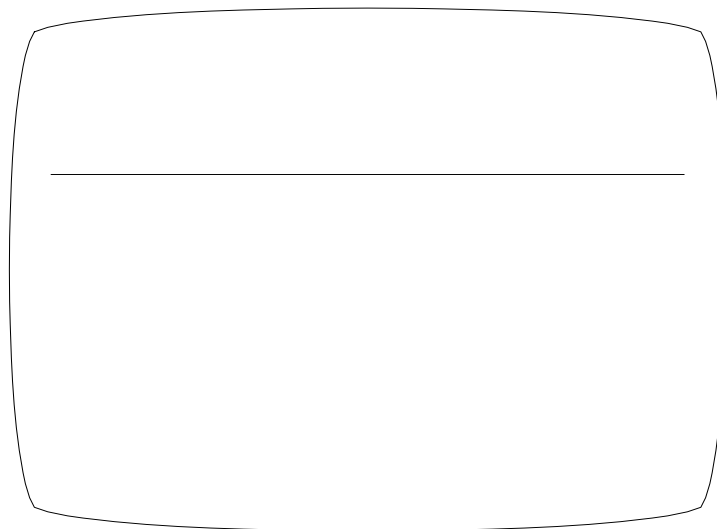
Single horizontal cursor

5. Mounting.

There are two ways to mount the XS300AS; by the 4 mounting holes or by the threaded bushing.   You should not use both at the same time because it will likely put stress on the switch and other components unless carefully aligned.
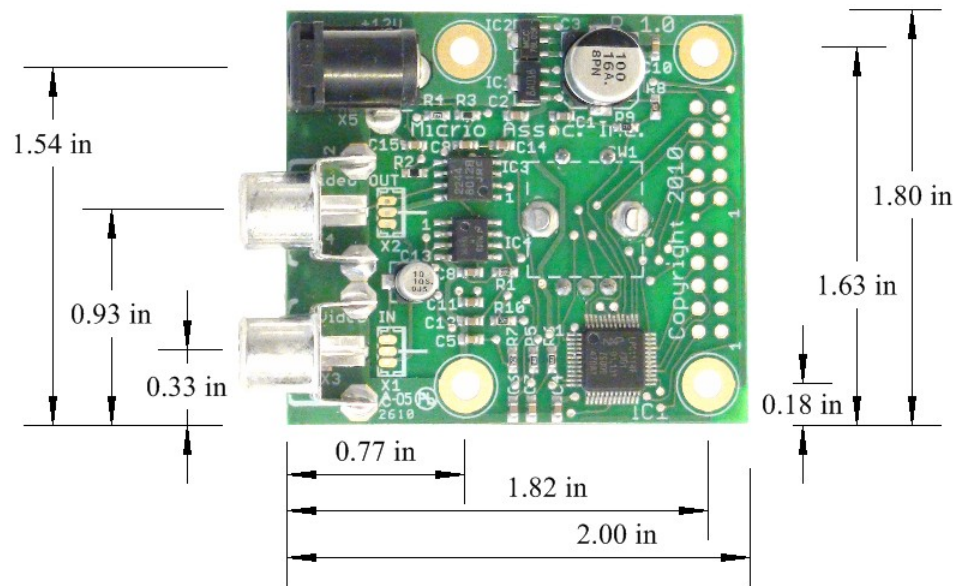
5.1 Mounting holes.

There are 4 mounting holes that can take either 3 mm metric screws or 4/40 American standard screws. This is the preferred mounting method.   It results in the greatest strength for the video and power connectors.   This also results in better cooling for the components.

5.2   Switch bushing.

The switch has a 7 X .75 mm metric threaded bushing.   Hardware is included that can be used to mount the XH300AS using the bushing.   This should only be used if the video and power connectors are not normally changed.

## 6. Mechanical drawings.

6.1   Component side view.

Board view, component side.

All measurements are from the corner of the board.   All components except for the encoder switch are on the top of the board.   All mounting holes are connected to the ground plane.   The two DIP connector patterns are not used and should be left not connected except for disabling the menus as described earlier.
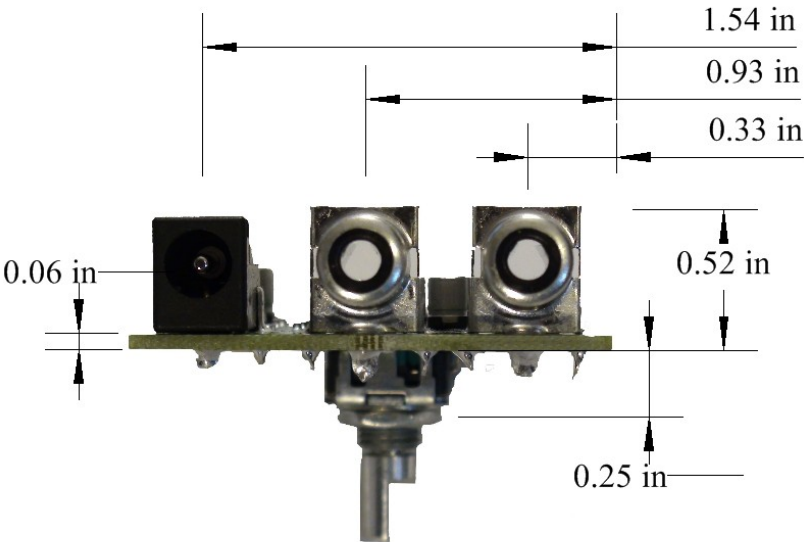
6.2   Control side view.
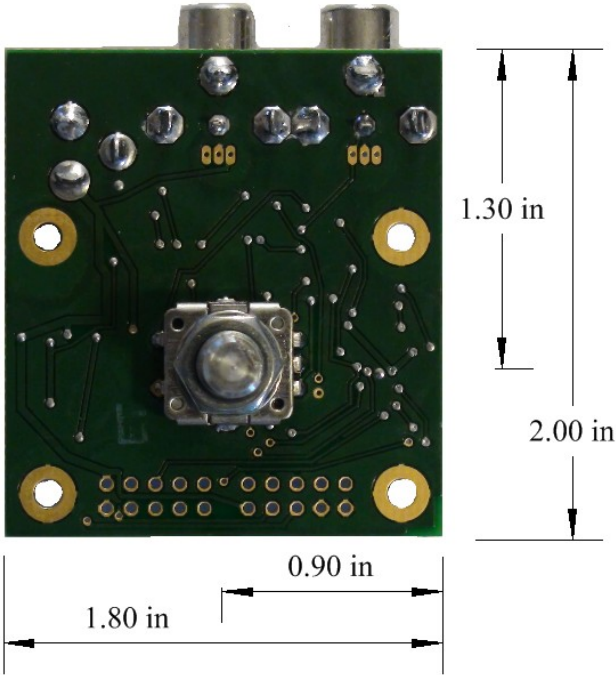
Board view, control side.

This shows the position of the cursor control from the reference corner of the board.
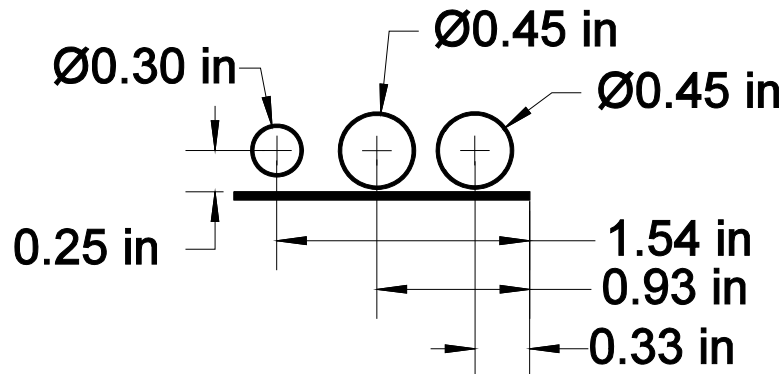
6.3   Connector Edge View.

Board view, connector edge.

This shows the position of the connectors from the reference edge of the board. The next section has the recommended cutout sizes for the connectors.

6.4   **Recommended chassis holes.**

Board view, from video connector edge.

This shows the recommended chassis punch out holes necessary to expose the connectors. The encoder switch (not shown) is facing downward in this view.

7. Warranty.

This is Micrio's "we understand" warranty. We understand that our products sometimes fail too soon. We also understand that sometimes customers make mistakes and kill our products. We always want our customers to be happy with anything they purchase from Micrio.

If one of our products fails we want to make it right. You don't have to tell us what happened but we would like know what caused our products to fail so that we can improve them. In this spirit Micrio will repair or replace any of our products for a period of one year after the date of purchase. We will do our best to make it right!

8. Customization.

The XH300AS has been designed with versatility in mind.   The crosshair and text are all generated in firmware.   This allows a wide range of customizations for specialized needs.   This product is able support an ASYNC interface with special firmware.   There is a full ASCII text generator available for use in optional features. Special firmware could support a button interface rather than the knob.   Contact www.micrio.com for any special needs.

There are two video connectors that are not populated.   They are next to the RCA video connectors and perform the same function, one for video in and the other for video out.   They are Molex 1.25mm connectors, part number 53047-0310.   They are compatible with the micro video cameras and board cameras that are commonly available.   The incoming power is available on this connector.   Contact Micrio for more information.