

Touch Foil smaller than display area instructions

Background Information.

The problem with using a smaller touch foil than the display area is that when trying to calibrate some if not all the targets appear outside the active area. The only way around this is to manually change the setup file used by the MA7 Driver called MA7.INI (shown as MA7 Configuration Settings), this is located in the same folder as the MA7_Driver and the setup program called MA7_Control.

Using a simple text editor such as Notepad the file MA7.INI can be opened and read, there is a section entitled [Calibrate] that holds the calibration information as shown below.

```
[Calibrate]
Ref_TL_X=0.100000001490116
Ref_TL_Y=0.100000001490116
Ref_TL_A=-0.36599999666214
Ref_TL_B=0.145999997854233
Ref_TR_X=0.898000001907349
Ref_TR_Y=0.100000001490116
Ref_TR_A=-0.34799998998642
Ref_TR_B=1.39199995994568
Ref_BL_X=0.100000001490116
Ref_BL_Y=0.898000001907349
Ref_BL_A=0.902999997138977
Ref_BL_B=0.145999997854233
```

There are three targets / calibration points these are called TL (Top Left), TR (Top Right) and BL (Bottom Left).

The lines with X and Y show the actual target positions in what we call display space. The lines with A and B show the actual touch positions in what we call touch space. Changing the values of X and Y changes the target positions for real but does not move the target graphics when calibrating as these are just dumb graphics representing the target positions 10% in from the edges of the display. The manual adjustments we will be making only effect the A and B values in the [Calibration] section, the actual touch positions registered as marked in bold. Not all of them may need adjustment, it is dependent upon how many Targets are not in the touch active area.

When we modify the [Calibrate] section we can reduce the number of decimal points down to say 3, it makes the changes simpler.

Installing the touch foil

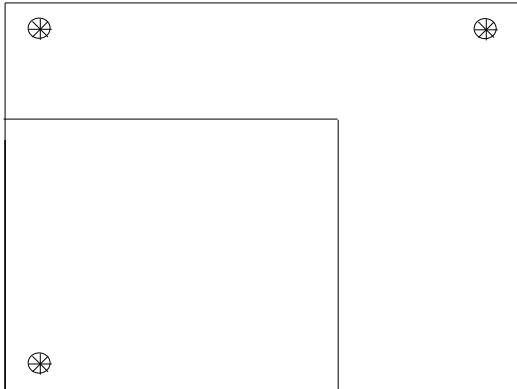
Carefully install the touch foil, as normal making sure it is square to the display in the chosen position. It is possible to install the touch foil anywhere required, it does not need to be in the centre of the display or in one corner but we will use these two positions as examples. The rules applied to these two examples will work for any position.

TOUCH FOIL BOTTOM LEFT CORNER OF DISPLAY AREA

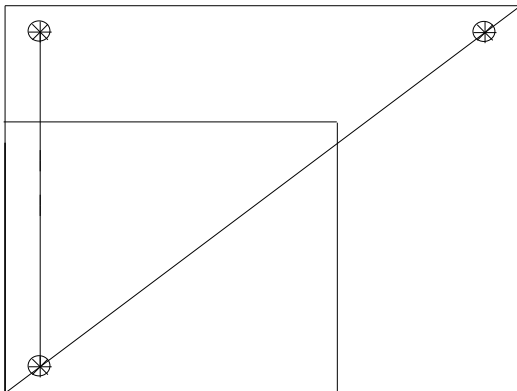
Preparation for Modification of MA7.INI setup file.

We assume from here that the touch foil is connected, the drivers installed and the system is fully working and there are no broken wires.

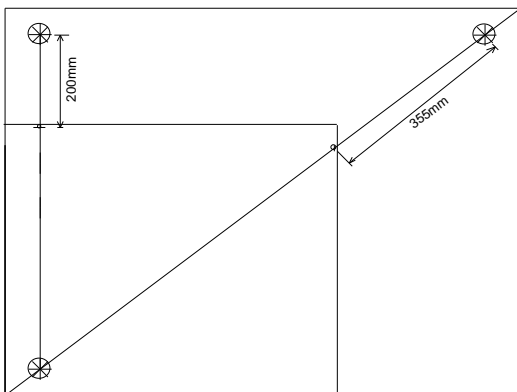
1. Mark on the glass the positions of the Calibration Targets (if the targets are out of the active area just touch the foil to keep the routine running)



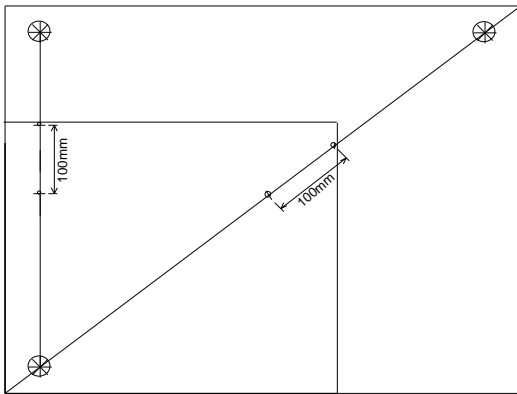
2. Now draw lines between the calibration points as below.



3. Now mark new outer target positions in the touch active area like we have done below.

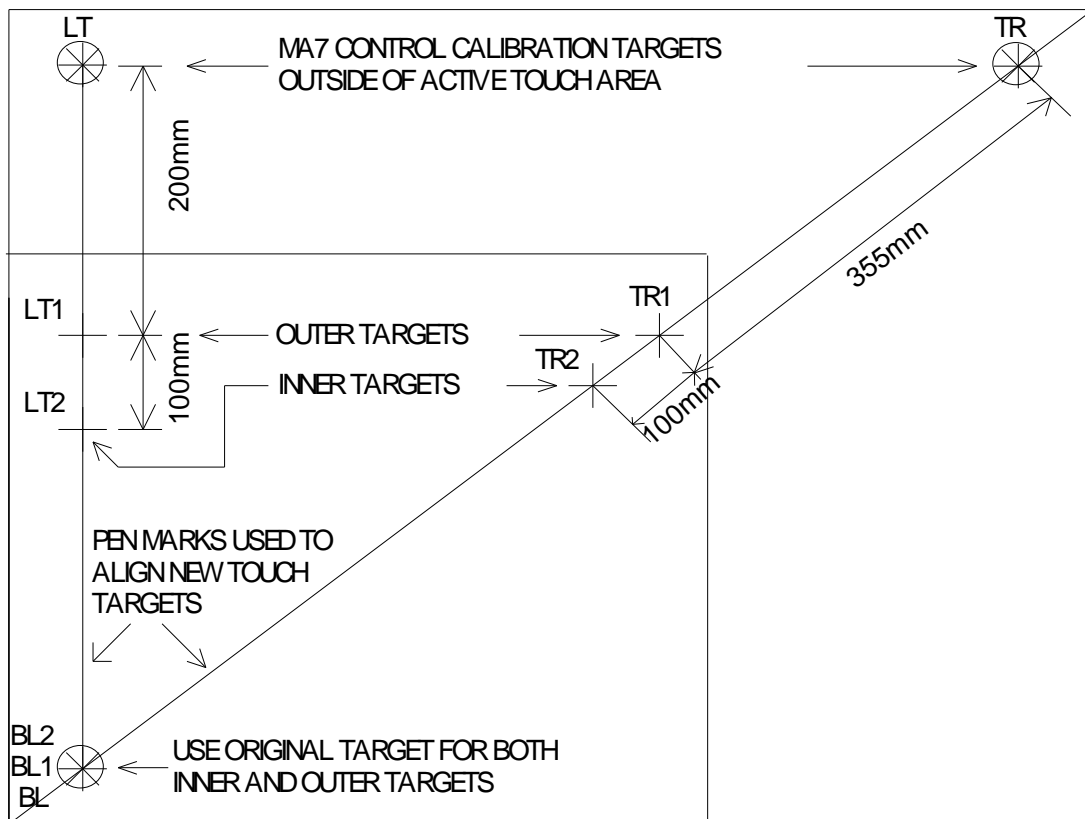


- Now run the calibration routine touching the new calibration points you have marked at the top and use the normal target at the bottom. Save the setup and stop and exit the driver. Using Notepad reduce the Calibration data to 3 decimal points and save this file Outer.INI.
- Now mark another set of calibration points in from the first set you marked, we have gone in 100mm but you can choose a distance to suit you. The two can be different distances as long as you make a note of what they are.



- Now run the calibration routine again and use the new set of calibration points and the same one at the bottom. Save the settings and using Notepad reduce the calibration data back to 3 decimal points and save this file as Inner.INI.

CALCULATING NEW [Calibration] VALUES



With reference to the above drawing calculations follow, you will find that only 3 data lines need to be changed:-

Put the INNER and OUTER printouts side by side and compare the A and B values for TL, TR and BL. For the values that have changed deduct the smaller value from the larger value and record this against the relevant line, we have called this DIFF' on our table below (short for difference).

The 'TARGET GAP 1' is the gap between the targets for e.g. TL1 and TL2 is 100mm and TR1 and TR2 is 100mm.

'SCALE' is the Target Gap divided by the DIFF', calculate this for all targets that have changed.

The 'TARGET GAP 2' is the gap between say TL1 and TL is 200mm. Also between TR and TR1 which is 355mm.

The value titled 'ADJUST' is the adjustment made to the relevant target data in our printout called OUTER. This value is worked out by dividing the 'TARGET GAP 2' with the SCALE.

RESULT is the value to be entered instead of the current value by either adding or taking away the 'ADJUST' figure to the relevant value in the printout called OUTER.

TOUCH FOIL BOTTOM LEFT CORNER OF DISPLAY AREA.

With the Touch Foil in the bottom left corner of the display one target is in the touch active area and therefore only two touch targets are a problem. The Top Left target is correct in the X plain and adjustment is only required in the Y, the top right is totally out in both X and Y. The end result is that only three calibration data need to be manually changed.

The marking out of the display is slightly different to that of the centrally fitted touch foil but the rules still apply. Please see table below for the calculations involved.

INNER PRINTOUT	OUTER PRINTOUT	DIFF'	TARGET GAP1	SCALE	TARGET GAP2	ADJUST'	RESULT
[CALIBRATE]	[CALIBRATE]						
Ref_TL_X=0.100	Ref_TL_X=0.100						
Ref_TL_Y=0.100	Ref_TL_Y=0.100						
Ref_TL_A=0.291	Ref_TL_A=0.072	0.219	100mm	456.62	200mm	0.438	-0.366
Ref_TL_B=0.146	Ref_TL_B=0.146						
Ref_TR_X=0.898	Ref_TR_X=0.898						
Ref_TR_Y=0.100	Ref_TR_Y=0.100						
Ref_TR_A=0.225	Ref_TR_A=0.099	0.126	100mm	793.650	355mm	0.447	-0.348
Ref_TR_B=0.837	Ref_TR_B=0.959	0.122	100mm	819.672	355mm	0.433	1.392
Ref_BL_X=0.100	Ref_BL_X=0.100						
Ref_BL_Y=0.898	Ref_BL_Y=0.898						
Ref_BL_A=0.902	Ref_BL_A=0.903						
Ref_BL_B=0.145	Ref_BL_B=0.146						

The values to be put into the MA7.INI file are shown below.

```
[CALIBRATE]
Ref_TL_X=0.100
Ref_TL_Y=0.100
Ref_TL_A=-0.366
Ref_TL_B=0.146
Ref_TR_X=0.898
Ref_TR_Y=0.100
Ref_TR_A=-0.348
Ref_TR_B=1.392
Ref_BL_X=0.100
Ref_BL_Y=0.898
Ref_BL_A=0.902
Ref_BL_B=0.145
```

Make sure that the MA7.INI file is saved and printed out.

Before running the MA7 Control program make sure that no MA7 drivers are running.