QVGA CONTROL MANAGER

USER GUIDE

Rev. 1.0.0

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1. QVGA CONTROL MANAGER USER GUIDE

This guide describes use of the QVGA Control Manager software for evaluation of TC51900 LCD Controller Board.

1.1. QVGA CONTROL MANAGER SETTINGS

"Settings" utility (accessed from "File" menu) allows user to establish communication with the controller.

Figure 1-1 Settings Utility
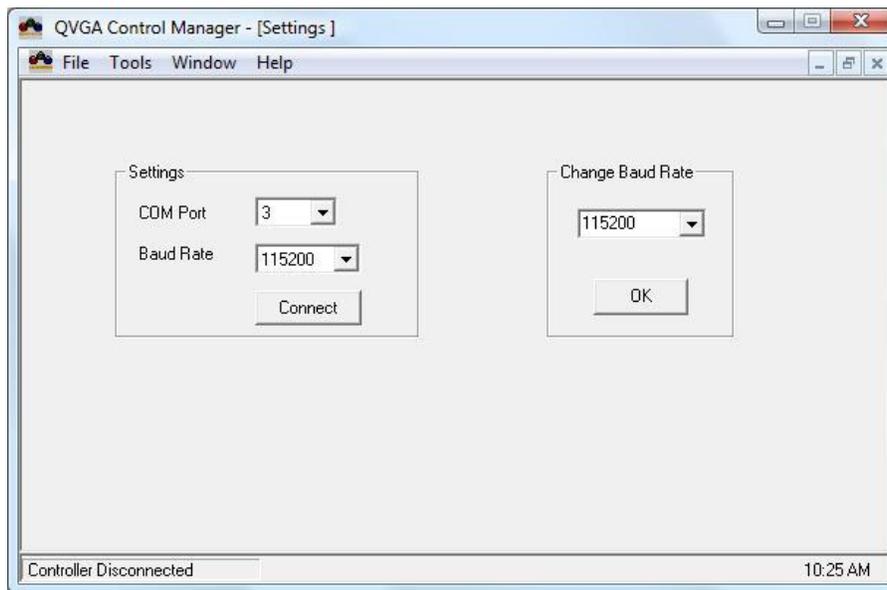
A serial connection is required between the LCD controller board and a personal computer in order to communicate with the controller. To establish a serial connection with the controller board:

1. Select COM port.
2. Select Baud Rate (default 115200).
3. Press Connect.

Program will verify a physical connection with the controller. If the selected COM port is busy, the Critical Error message will appear.

Statement 1-1 Critical Error

1
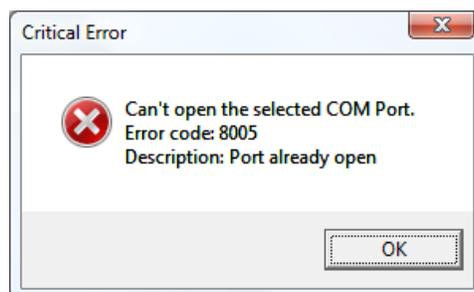
If the selected COM port is busy (open), try to connect to a different COM port. If no connection is detected, the Demo Mode message will appear.

Statement 1-2 Demo Mode
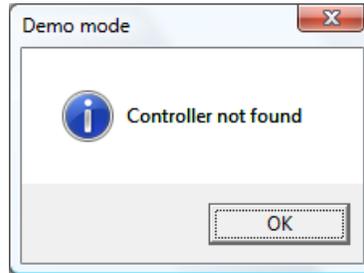
In order to change the default baud rate:

1. Select baud rate value:
   9600, 14400, 19200, 28800, 38400, 57600, or 115200 bps (default)
2. Press OK
3. When Attention message appears, remove jumper J11#1 prior to sending the command.

The Change Baud Rate command will reset the controller. The baud rate is stored and will default to the stored value.

Statement 1-3 Attention

1.2. QVGA CONTROL MANAGER FONT

"Font" utility (accessed from "Tools" menu) allows user to write font to the flash memory.

Figure 1-2 Font Utility
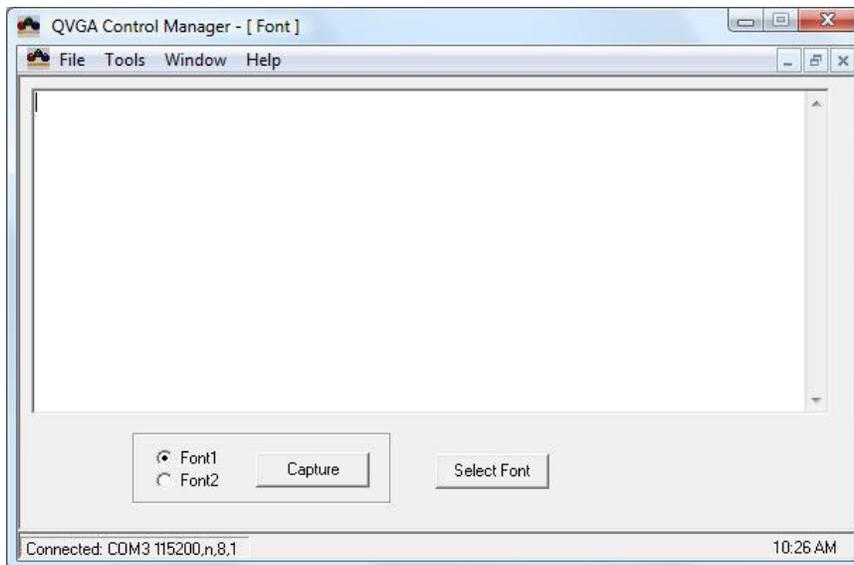
The LCD controller supports 2 user-selectable fonts. Maximum font size is 26 pixels high. Use our utility software to convert and save system fonts to the controller flash memory.

1.3. QVGA CONTROL MANAGER GRAPHIC

"Graphic" utility (accessed from "Tools" menu) allows user to preview, save and load graphic patterns.

Figure 1-3 Graphic Utility
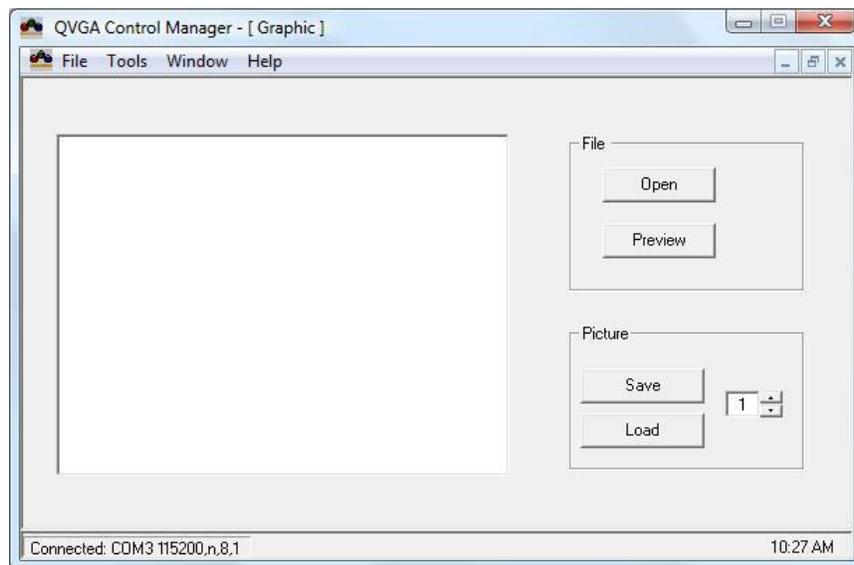
The 8Mbit of external flash memory is capable to save up to 12 full screen images.

To save image in the external flash memory: choose screen # 1-12 and press "Save".

To Load image from external flash memory: choose screen # 1-12 and press Load.

1.4. QVGA CONTROL MANAGER COLOR PICKER

"Color Picker" utility (accessed from "Tools" menu) allows user to pick and set font and display background color (default: 255).

Figure 1-4 Color Picker Utility
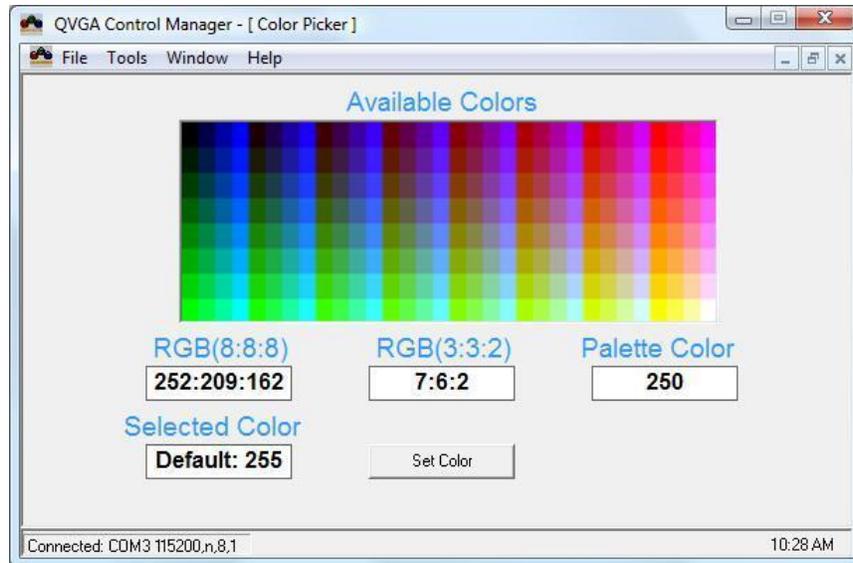
To set the color: move mouse to the desired color, click to select and press Set Color.

1.5. QVGA CONTROL MANAGER TEXT

"Text" utility (accessed from "Tools" menu) allows user to set cursor position, font color (default: 255) and select font.

Figure 1-5 Text Utility

4
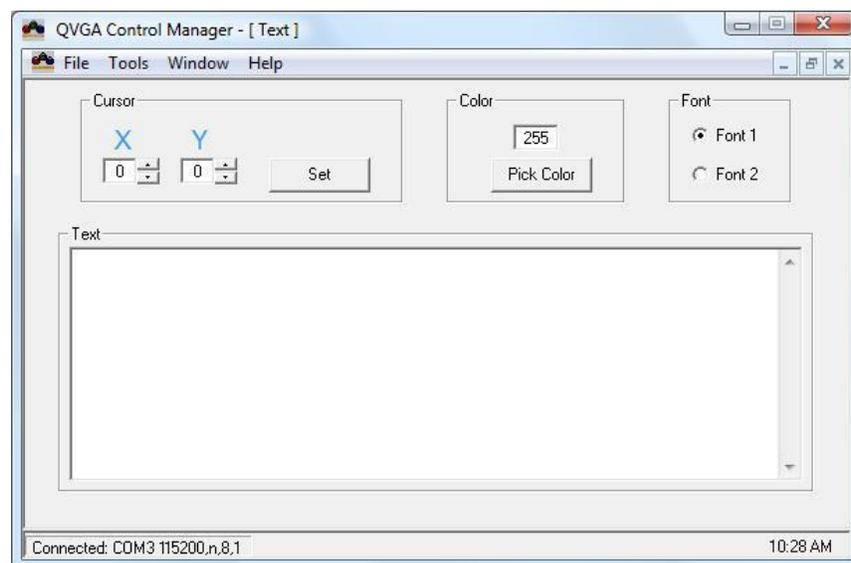
In order to write text:

1. Set cursor position by specifying X and Y values and pressing Set.
2. Pick text color or use default: 255 color.
3. Specify font from the flash memory.
4. Type text in Text window and press Enter to terminate string.

1.6. QVGA CONTROL MANAGER COORDINATES

"Coordinates" utility (accessed from "Tools" menu) allows drawing lines and shapes.

Figure 1-6 Coordinates Utility - Line
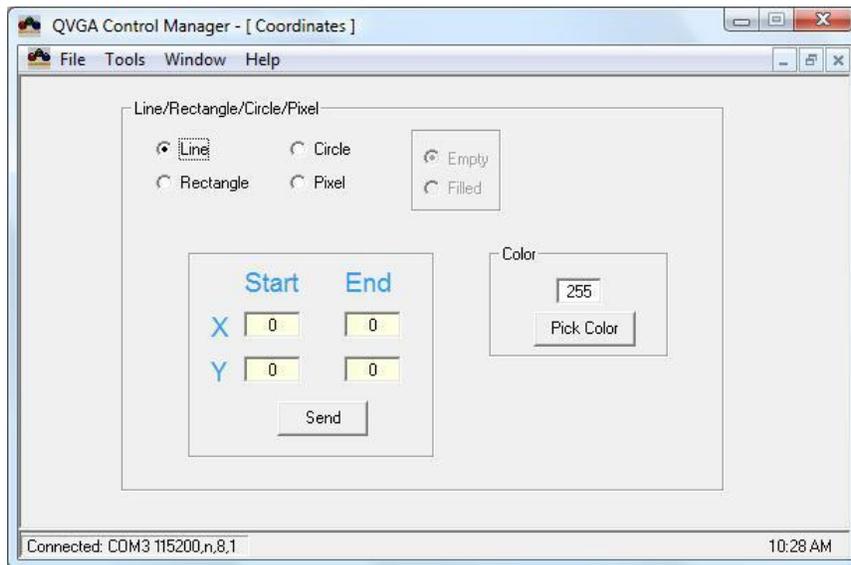
To draw a line: select "Line", pick line color or use default: 255 color, enter Start and End coordinates, and click Send.

Figure 1-7 Coordinates Utility - Rectangle
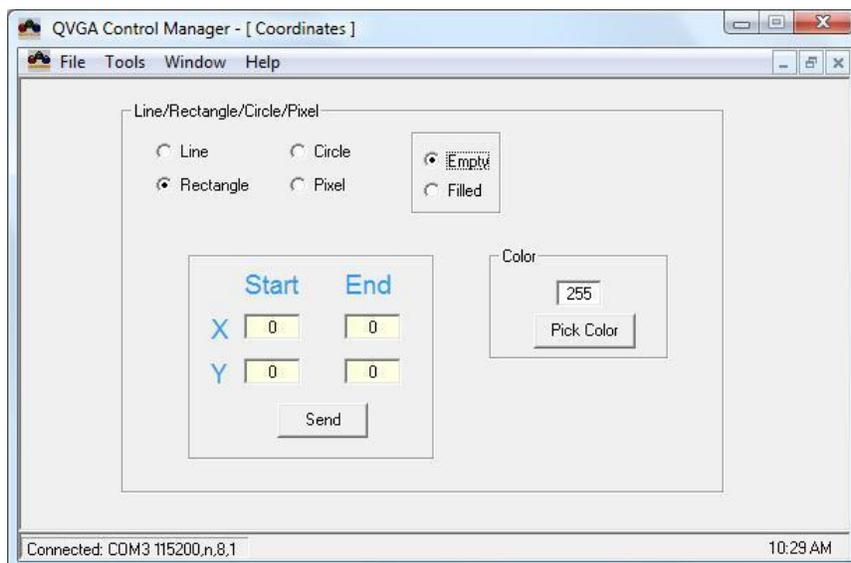
Selecting Rectangle will activate Empty and Filled buttons.

To draw a rectangle outline: select Rectangle, Empty, pick rectangle color or use default: 255 color, enter Start (upper left corner of the rectangle) and End (lower right corner of the rectangle) coordinates and click Send.

To draw a filled rectangle: select Rectangle, Filled, pick rectangle color or use default: 255 color, enter Start (upper left corner of the rectangle) and End (lower right corner of the rectangle) coordinates and click Send.

Figure 1-8 Coordinates Utility - Circle
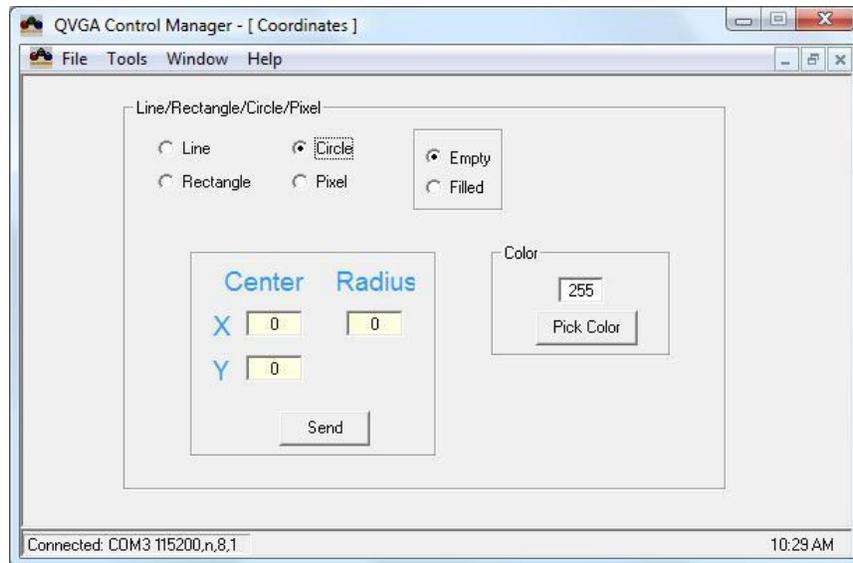
Selecting Circle will activate Empty and Filled buttons.

To draw a circle outline: select Circle, Empty, pick circle color or use default: 255 color, enter Radius and Center (of the circle) coordinate and click Send.

To draw a filled circle: select Circle, Filled, pick circle color or use default: 255 color, enter Start (upper left corner of the rectangle) and End (lower right corner of the rectangle) coordinates and click Send.

Figure 1-9 Coordinates Utility - Pixel
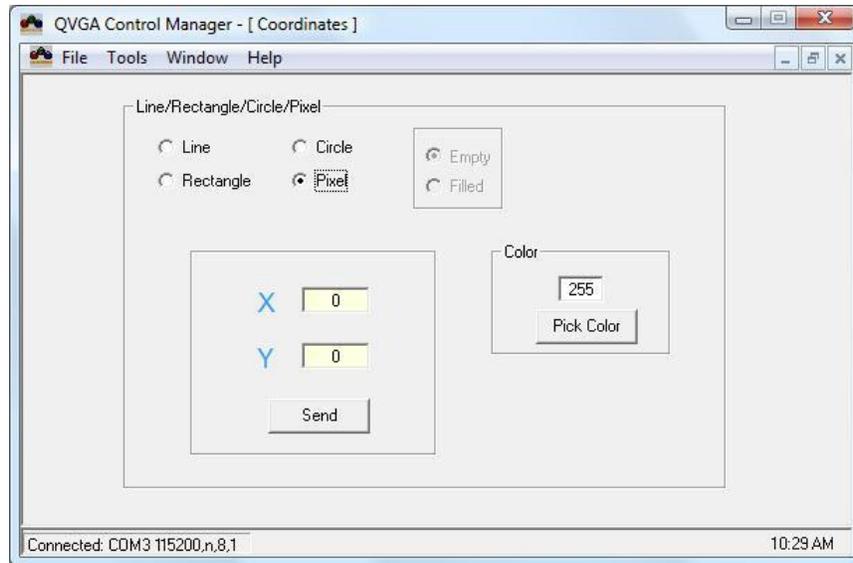
To work with pixels: select Pixel, pick pixel color or use default: 255 color, enter XY coordinates and press Send.

1.7. QVGA CONTROL MANAGER UTILITIES

"Utilities" (accessed from "Tools" menu) allows working with touch screen and additional controller features.

Figure 1-10 Utilities
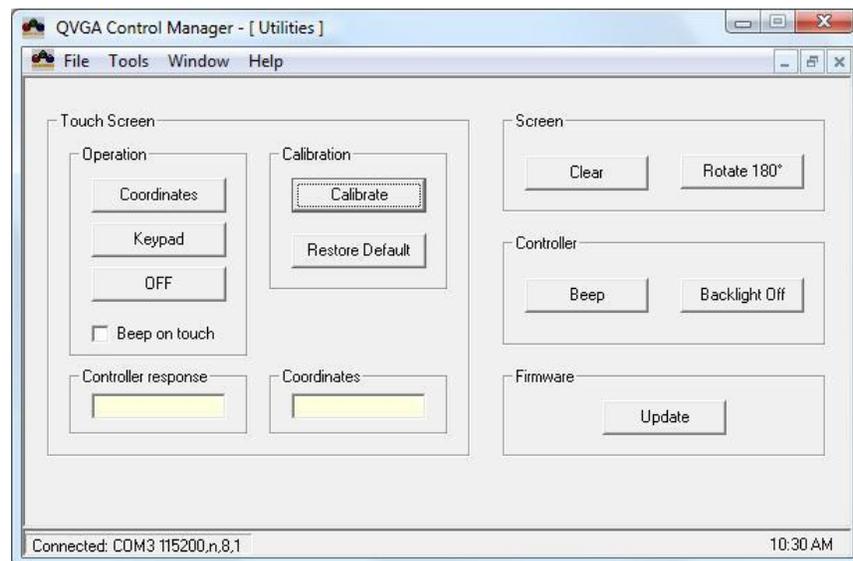
The touch screen controller can operate in one of these modes: 1) send raw X and Y coordinates of touch screen contact location, or 2) send digits (if used as a keypad) to host microprocessor or PC. On touch release, the controller sends "$" (0x24). To switch between the modes, use OFF button.

In Coordinates Mode, the controller sends XY coordinates of a touch location. Controller Response displays the controller response and is updated every time touch on the touch screen is detected. Since every X coordinate requires 9 bit address, the first byte is MSB + second byte. Each byte is separated by coma (0x2C). Example: X,X,Y (X+0x2C+X+0x2C+Y). The software converts touch screen response into coordinates and displays them in Coordinates box.

In Keypad Mode the touch screen is divided into 32 rectangles. The controller sends decimal numbers of each rectangle, see Keypad Example.

Example 1-1 Keypad

1					6
31					36

Beep on Touch checkbox allows enabling (if checked) or disabling an audio signal (beep) on touch.

The LCD controller uses two points calibration algorithm to calibrate the touch screen. There is no need to calibrate the touch screen every time the device is powered on. The calibration constants are saved in the internal EEPROM and they will restore after power on.
To begin touch screen calibration, click Calibrate button. The screen will be cleared and a small dot will start blinking at the upper left corner of the display. Touch and hold this dot with a stylus until it disappears. The next dot will appear at the opposite corner. Again touch and hold this dot with a stylus until it disappears. The touch screen calibration is done.

Restore Default button allows to restore the factory default calibration values.

Clear Screen command is used to clear the entire screen text and graphics.

Rotate 180° command is used to rotate the screen to 180°.

Beep command is used to activate the audio signal.

Backlight On/Off command is used to turn the display backlight ON or OFF.

Firmware Update allows to update the LCD controller board's firmware. To enter the programming mode:

1. Turn off the LCD controller board.
2. Press S1 button on the controller and apply power.
3. Release the S1 button.
4. Click Update and select *.tvi update file.

* Note: DO NOT power off the LCD controller while the firmware update is progressing, this may damage the LCD controller.