7 inch capacitive touch screen LCD 800x1280 (HD702)

7" High Definition LCD with Capacitive Touch (HD702)

Introduction

Mode：HD702
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The HD702 LCD is a FriendlyELEC developed LCD with capacitive touch panel. Its resolution is 800 x 1280. Its backlight is adjustable via FriendlyELEC’ s one-wire technology. It works with FriendlyELEC’ s 4412/4418/6818 boards under UbuntuCore+QtE/Debian and Android. Its driver is open source.

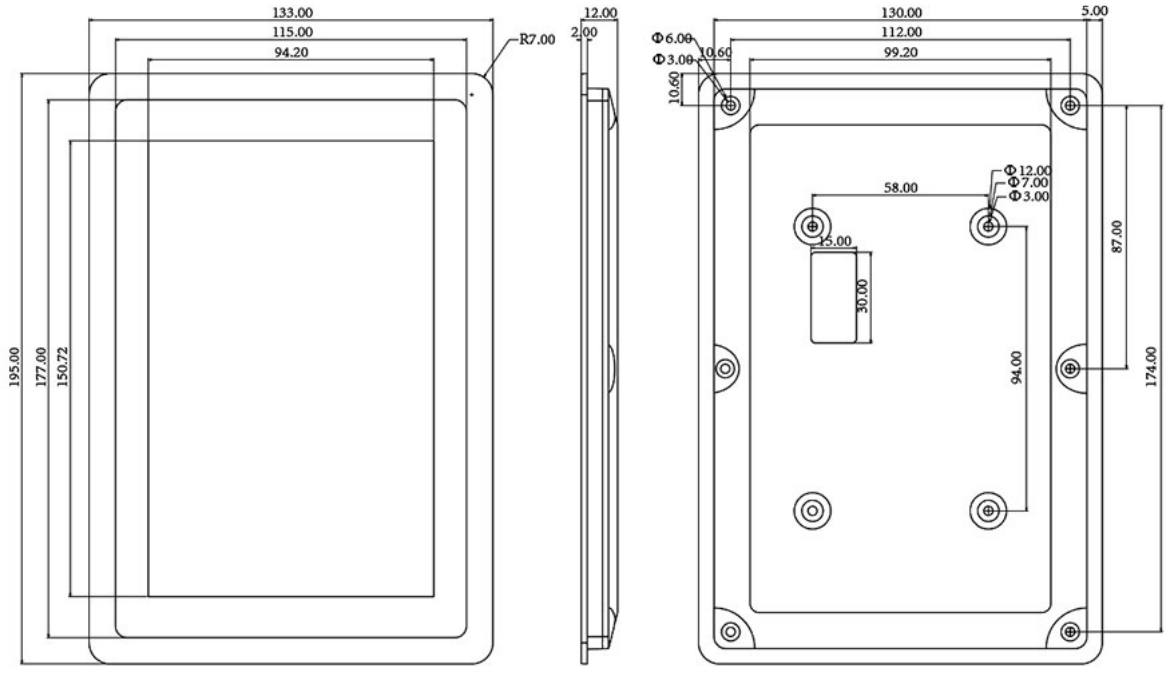
The HD702 has a black bezel with mounting holes making it easily deployed in various situations.

Note: we have a more detailed introduction to the one-wire technology in the appendix.

HD702 Hardware Spec

Item	Specifications
Type	HD702
Display Area	94.2(H)x150.72(V) (mm) (7-inch diagonal)
CF Glass Dimension	99.9(H) x 155.42(V)(mm)
TFT Glass Dimension	102.1(H) x 158.92(V)(mm)
Number of Pixels	800 ×3(H)×1280 (V)
Pixel Pitch	0.11775(H)×0.11775(V) (mm)
Color Pixel Arrangement	RGB vertical stripe
Driving Method	TFT Active Matrix
Display Mode	Normally black
Number of Colors	262,144(6bits)/16.7M(8bits)(LVDS)
Transmittance	3.37(Min)/3.66 (Typ.)
Response Time	50ms (Max)

Dimensional Diagram



(unit:mm)

Product Photos

Connection Details

Plug & Play, No Extra Software Configurations Needed, Open Source Driver

HD702 Supported ARM Boards & OS

OS / Board	Android	Debian	Linux + Qt
NanoPi S2	Y	Y	-
NanoPi M2	Y	Y	-
NanoPi 2 Fire	Y	Y	-
NanoPi M3	Y	Y	-
NanoPC-T2	Y	Y	-
NanoPC-T3	Y	Y	-
Smart4418	Y	Y	-
Tiny4412	Y	-	Y

NanoPC-T2 works with HD702

OS: Android

※ The above pictures are for reference. HD702 can be set to landscape mode in software configurations.

Item List

1 x HD702 with capacitive touch;

1 x FPC cable;

Appendix: One-Wire Technology

As for most ARM boards we observed that using CPU's ADC conversion didn't work very well for large-size LCDs (7" and larger) with four-wire resistive touch. Some vendors use an external USB or UART module to connect these LCDs. To save CPU's hardware resources and minimize usage of external modules we developed the one-wire technology which only uses a single GPIO pin and we have integrated this technology in all our LCD controller boards. This technology uses an MCU to communicate with the touch panel's chip (we use the ADS7843 chip or other chips compatible with ADS7843) and process the four-wire resistor's analog signals and output the filtered stable signals to the ARM board via GPIO. We tested this technology in various LCDs and it worked very well even for a large LCD of 19" and some commonly observed issues such as screen flipping and jittering were not encountered.

Today most LCDs whose size is less than 12" have LED backlight. We use the one-wire's MCU to process the backlight as well. The backlight is set with a range of values. Users can set a value to the backlight and this value is passed to MCU for processing via one-wire's GPIO pin.

Each FriendlyARM's LCD module has a unique ID which is saved in the one-wire's MCU. When the MCU reads the ID information from GPIO signals it will recognize the LCD model and instruct the bootloader to load the corresponding LCD driver, making a FriendlyARM LCD plug and play.

As for the one-wire technology for our LCDs with capacitive touch we removed the resistive touch panel's chip but kept the backlight adjusting function and LCD's ID information. Therefore the communication between the capacitive touch and the ARM board is still standard IIC.

Please note that the one-wire technology is different from the commonly known single-bus communication. Actually in the ARM board we use a PWM timer (not PWM pins) to generate the communication frequency (9600Hz). For more details please refer to the driver's source code.