

DISPLAY MODULE

LCM3_CA57V-TA-GLS-1

1. Features

- Landscape VGA display with a wide viewing angle
- Long life high brightness LED backlight (temperature controlled LED current limit to increase lifetime even more)
- Resistive touch glass
- High performance μ C:
 - ARM7 core with 72MHz
 - on chip LCD controller
 - 64kByte RAM
- 8MByte SD-RAM
- 8MByte additional flash memory (e.g. for pictures and fonts)
- 4kByte EEPROM for configuration data
- Connector for optical/mechanical encoder with trigger switch and 3,3V supply
- Piezo loudspeaker
- Temperatur sensor
- Wide supply voltage range 5V – 12V
- UART interface for communication 3.3V level (5V tolerant), autobauding
- Over 300 commands to design graphical user interface for various applications

2. Description

The display module allows to easily furnish existing devices or those being developed with an ergonomical graphical user interface. The display of this module is selected especially with respect to quality and long-term availability as this is a frequent requirement in industrial applications. The module can be controlled by any hardware using a serial interface, even small 8-bit microcontrollers. Directly programming of the module is not required.

The LCM3 modules consist of two major blocks. These are the display, chosen for the application and the printed circuit board (PCB) for the controlling electronic circuit. The PCB is directly mounted on the back of the display, resulting in a very compact module.

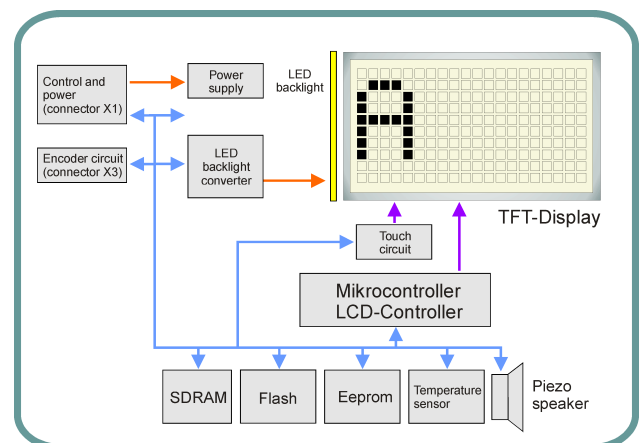


Figure 1: Block diagram

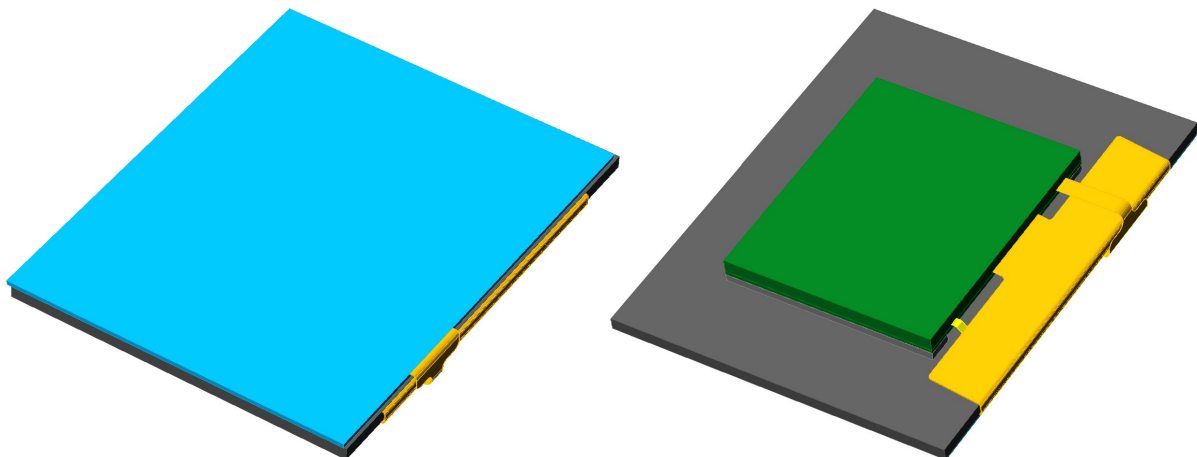


Figure 2: 3D view

3. Specification

Item	Specification	Unit	Comment
Display diagonal	144 (5,7)	mm (Inch)	
Display resolution	640 x 480	Pixel	
Outline dimensions: - Width - Height - Depth	130,66 102,35 12,73	mm mm mm	Display including PCB
Weight	143	g	Display including PCB
Number of colors	65536	-	
Brightness	320	cd/m ²	
Operating temperature	-20 to +60	°C	
Software	Simplify Technologies GUI-Interpreter	-	
Startup time	500	ms	(from "power on"/"reset high" to "ready to operate")

4. Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit	Comment
Supply voltage	V _{cc}	-	16	V	
Operating temperature	T _{op}	-20	60	°C	
Storage temperature	T _{store}	-30	70	°C	
Humidity	H	20	90	%RH	No condensation
Reset input	V _{res}	-0,5	6	V	
UART input - if V _{cc} is not applied - if V _{cc} is applied	V _{rx}	-0,5	0,5 6	V	
Encoder inputs - if V _{cc} is not applied - if V _{cc} is applied	V _{enc}	-0,5	0,5 6	V	

5. Operation Conditions

Item	Symbol	Min.	Typical	Max.	Unit	Comment
Operating temperature	T _{op}	-20	25	50	°C	
Supply voltage	V _{cc}	4,75	12	14,4	V	
Power consumption	P	0,9 ¹	2,3 ²	3	W	¹ : backlight switched off ² : backlight 100%
Current consumption - at 5V supply voltage - at 12V supply voltage	I _{cc}	180 ¹ 80 ¹	460 ² 190 ²	600 250	mA	¹ : backlight switched off ² : backlight 100%
Humidity	H	20	-	80	%RH	No condensation

Item	Symbol	Min.	Typical	Max.	Unit	Comment
Transmission speed	S	9,6	-	115,2	kBits/s	Supported baud rates: 9600, 19200, 38400, 57600, 115200

6. Electrical Characteristics

Item	Symbol	Min.	Typical	Max.	Unit	Comment
UART output (high level)	$V_{tx,high}$	2,8	3,3	3,5	V	Output current 4mA
UART output (low level)	$V_{tx,low}$	-	-	0,4	V	Output current 4mA
UART input (high level)	$V_{rx,high}$	2,2	-	5,5*	V	*: only if V_{cc} is applied
UART input (low level)	$V_{rx,low}$	-	0	0,6	V	
Reset input (high level)	$V_{res,high}$	2	3,3	5,5	V	
Reset input (low level)	$V_{res,low}$	-	0	0,6	V	
Encoder supply voltage	V_{enc}	3,14	3,3	3,47	V	
Encoder supply current	I_{enc}	-	-	50	mA	
Encoder inputs (high levels)	$V_{IOE,high}$	2,2	-	-	V	
Encoder inputs (low levels)	$V_{IOE,low}$	-	-	0,6	V	
Encoder pullup resistor	R_{enc}	-	33	-	k Ω	At encoder pins 1, 2, 3

7. Connectors

"Power+Control" connector:

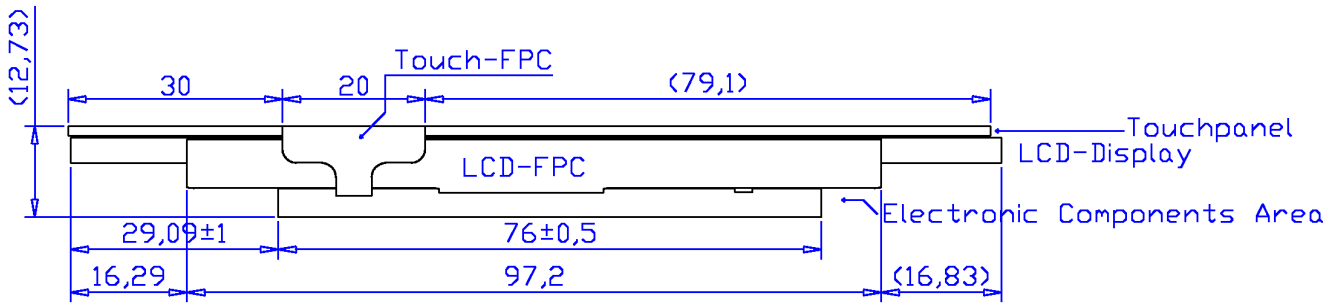
Pin	Signal	Description
1	Reserved	Do not connect
2	TX	UART output
3	GND	Ground
4	RX	UART input
5	Reserved	Do not connect
6	Reset	Input active low
7	Reserved	Do not connect
8	V_{cc}	Supply voltage

„Encoder“ connector:

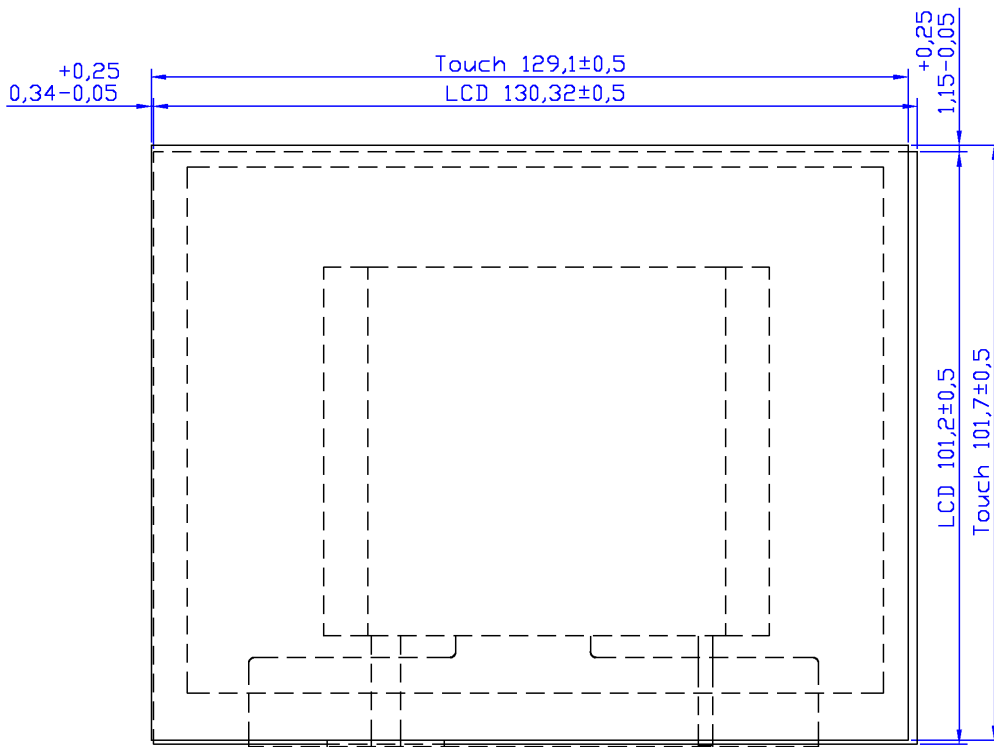
Pin	Signal	Description
1	Axis 1b	Input B of the encoder
2	Axis 1a	Input A of the encoder
3	I/O	Input of the encoder switch
4	GND	Ground
5	V_{enc}	Supply voltage of the encoder

8. Mechanical Drawing

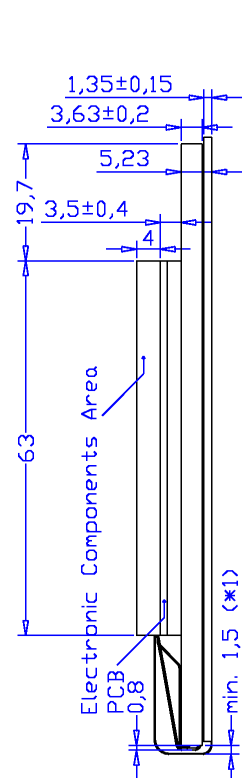
Frontview:



Topview:



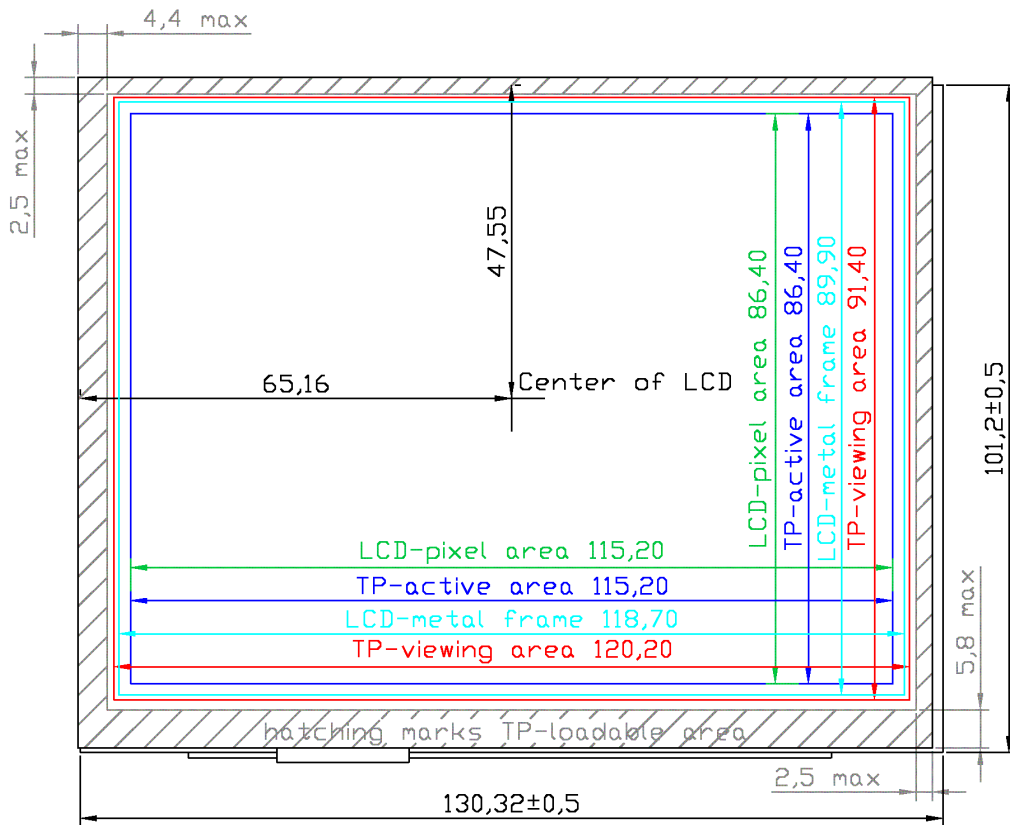
Sideview (left):



Notes:

- FPC means "Flexible Polyamide Cable"
- PCB means "Printed Circuit Board"
- "Electronics Components Area" is a reserved area for electronic components, placed on the PCB. Keep distance to conductive parts, like metal housing, to prevent short circuit.

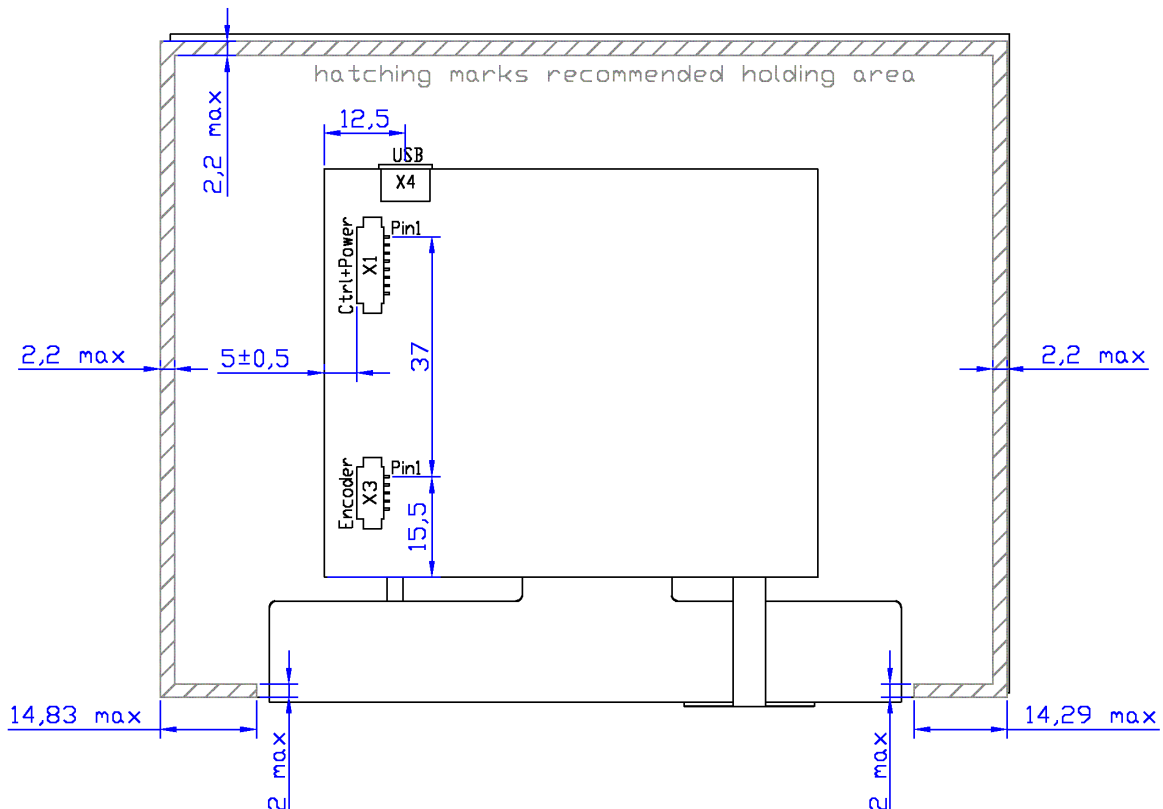
LCD-screen and touchpanel areas (top view):



Notes:

- For detailed mounting instructions refer to the "Mounting Touch Displays" application note.
- If not otherwise noted, LCD- and TP-dimensions are symmetrical to the "Center of LCD".

Connector positions (rear view):



9. Application Details

Application Schematic (tbd)

10. Handling and Operation Precautions

The protective foil on the display does only cover the viewing area of the display. Don't remove the foil with the help of a sharp tool to avoid scratches on the touch glass surface.

11. Ordering Information

One packing unit consists of 36 display modules.

12. Important Notice

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