

How to use LCD4x20N library

The library is written for LCD with a Samsung controller KS0073 or equivalent, the display should have 4 lines with 20 characters.

I know the controller is a bit dated, but there are a lot of followers with the same instruction set, so you can use this library for a lot of LCD's.

If you are using another controller which is not compatible to the KS0073 you can change the instruction set in the FB CharToByte and in the FB LCDInit, as stated in the documentation of the controller.

The following steps should be observed:

1. Install the device description **LCD4x20N.devdesc.xml** in the repository
2. Install the lib **LCD4x20N.library** in the repository
3. Add the device in your project as SPI device
4. The only thing you have to do is to change the inputs sLine1 to sLine4 and then the LCD will be updated (see the demo project: **LCD4x20N.project**).

Inputs and outputs of the library:

Name	Type	Comment
sLine1	String, Input	String for line 1
sLine2	String, Input	String for line 2
sLine3	String, Input	String for line 3
sLine4	String, Input	String for line 4
xCursorOn	Bool, Input	Cursor of LCD On/Off, True=On
xCursorBlink	Bool, Input	Cursor blink On/Off, True=Blink
iWaitTimeClear	Int, Input	Number of PLC cycles are waited after the cursor has been placed to home position
iWaitTime	Int, Input	Number of PLC Cycles are waited between the telegrams
xClearDisplay	Bool, Input	True, clears the LCD and set the cursor to home position

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xEnable	Bool, Input	True, enables the data transfer of the sLine1 – Sline4 inputs to the LCD, so it is possible to control the timing between init and normal data transfer. See at demo project.
iState	Int, Output	State of the SPI communication, only for info for the user
udiSendCounter	UDInt, Output	Number of telegrams send , only for info for the user
xLCDInitDone	Bool, Output	LCD init is done, only for info for the user
xWriteBusy	Bool, Output	The lib is busy, only for info for the user

How to connect the LCD to the Pi:

Use the MOSI, CLK and CE0 Pin of the Pi to connect the display

MOSI → Data out of PI and data in LCD

CLK → Clock of SPI, is set to 1 MHz

CE0 → Chip select signal of SPI Master (PI)

Note:

The Pi Use 3,3 V logic at SPI outputs!

Demo Project:

The demo project *LCD4x20_Demo.project* demonstrates how you can use the library

Here some pictures from the shown display

