# Proculus UnicView AD LCMs Connection Guide 1.3

Proculus Technologies Limited

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# 1 Introduction

This section contains important information on how to read this document.

## 1.1 Document Overview

This document provides a general overview of the hardware connections on UnicView AD family of Proculus Technologies LCMs.

## 1.2 Conventions Used on this Document

This section presents the textual conventions and notations used in this document. Knowing these conventions will make it easier to read this document.

### 1.2.1 Glossary

| | |
|---|---|
| **LCM** | Liquid Crystal Module |
| **FFC** | Flexible Flat Cable |
| **SMD** | Surface Mount Device |
| **UART** | Universal Asynchronous Receiver/Transmitter |
| **USB** | Universal Serial Bus |
| **PC** | Personal Computer |
| **MCU** | Microcontroller Unit |
| **RTC** | Real-Time Clock |

### 1.2.2 Information, Caution and Warning Statements

This document may contain Information, Caution and Warning statements.

| | | |
|---|---|---|
|  | Info | This is an Information statement. It draws attention to certain key aspects about the current topic. |

| | | |
|---|---|---|
|  | Caution | This is a Caution statement. It describes a situation that could potentially damage your software, equipment or cause data loss. |

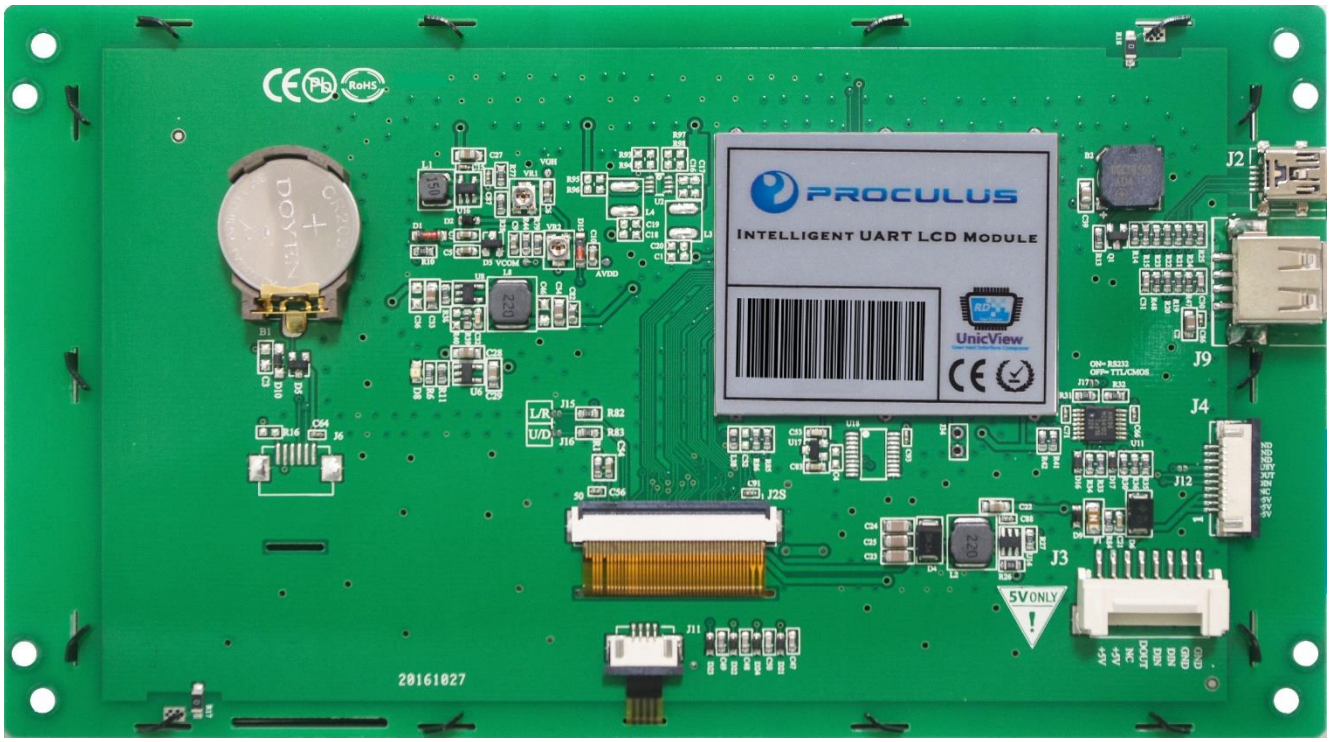
| | | |
|---|---|---|
|  | Warning | This is a Warning statement. It describes a situation that could potentially cause harm or injury to you. |

The information in Caution and Warning statements is provided for your protection. Read each Caution and Warning statement carefully.

# 2 LCM Board Overview

While components on the LCM's control board vary between models, the typical UnicView AD LCM has, at least:

- Coin Cell Battery Holder.
- One or two Serial port connectors.
- Two USB ports (or composite connector to Adaptor Board).
- Internal RTC.
- Touch panel connector.




The Serial and USB ports are the interface used to configure and communicate with the LCM's processing core.

# 3 USB Ports

There are two **USB ports** on a typical Proculus UnicView AD LCM. USB ports are commonly used in **interface development** and **production line** environments.

| | | |
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| ⚠ | Caution | Use only standard USB cables and voltage levels (**5 volts**). |

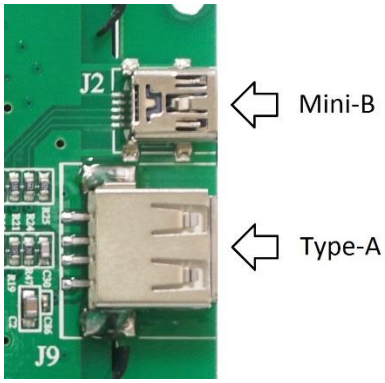
## 3.1 Connector Types

**USB Mini-B**

- Project download via USB cable connected to a host PC running UnicView AD software.
- Doesn't supply power to the LCM.

**USB Type-A**

- Firmware upgrading and project download via USB Flash drives.
- Doesn't supply power to the LCM.




| | | |
|---|---|---|
| ℹ | Info | When using **USB Mini-B** for project download, **you must provide power supply** to the LCM from one of the **Serial port connectors**. |

| | | |
|---|---|---|
| ℹ | Info | When using **USB Type-A** for project download or firmware upgrade, **you must provide power supply** to the LCM from one of the **Serial port connectors**. |

| | | |
|---|---|---|
| ⚠ | Caution | Some **lower-quality USB cables** present non-standard high electrical resistance, which may prevent them from functioning correctly. If the USB cable connection isn't working, consider replacing the cable with a **higher-quality** one. |

**Composite USB Connector**

Instead of the two USB connectors, the board may have a single connector that combines USB Type-A and USB Mini-B. This connector is used in conjunction with the Composite USB Adaptor Board.



# 4 Serial Ports

The **Serial port connectors** provide power supply to the LCM and serial communication to an external MCU or PC. There's always at least one Serial connector present. Most LCM models have **two connectors**, which are connected in **parallel** to each other.

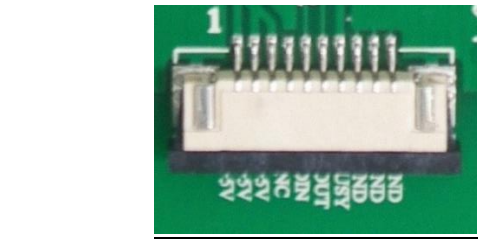
Serial ports are commonly used in **software development** and **final product** environments.

| | | |
|---|---|---|
| ⚠ | Caution | Always double-check the LCM's **supply voltage range** before turning it on. |

## 4.1 Connector and Cable Types

**FFC Cable / Connector**

- 5 volts LCMs only.
- TTL/CMOS or RS232 (selectable by jumper).

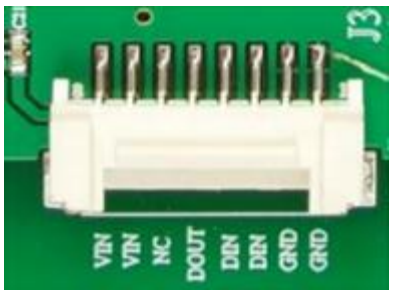






**Ribbon Cable / Connector**

- All supply voltage ranges.
- TTL/CMOS or RS232 (selectable by jumper).






| | | |
|---|---|---|
| ⚠ | Caution | Only one Serial port connector should be used at any given time. |

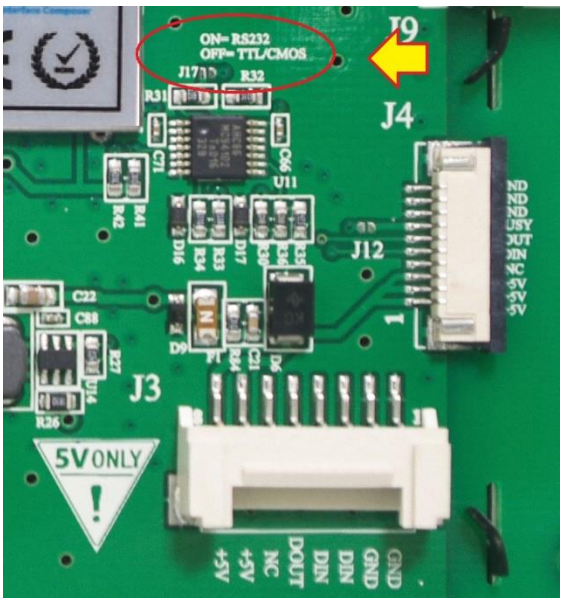
| | | |
|---|---|---|
| ⚠ | Caution | All information provided in this guide are for **reference only**, and cover the typical LCM models. **Always verify** your exact model's **specifications** before making electrical connections. |

## 4.2 Serial Communication Voltage Levels

Usually, the Serial communication voltage level is fixed at TTL/CMOS level. Certain LCM models offer selectable Serial communication voltage levels:

- TTL/CMOS (from 0-3.3V to 0-5V).
- RS232.

If a specific model offers selectable Serial communication levels, this selection is made by shorting the appropriate solder jumpers on the LCM board.



# 5 Adaptor Boards

Adaptor boards provide serial communication capabilities between the LCM and a computer, using one of the available Serial port connectors. They may also provide additional features and/or connectivity abilities.

## 5.1 Adaptor Board Types

**FFC Adaptor Board**

- Connected to the PC via USB Mini-B cable.
- Powered by the USB cable.
- 5 volts LCMs only.
- TTL/CMOS only.



DLB06

**Ribbon Adaptor Board**

- Connected to the PC via USB Mini-B cable.
- Powered by J4 Power Jack (5-24 volts) or USB Mini-B cable (5 volts) (selectable by jumper).
- All supply voltage ranges.
- TTL/CMOS or RS232 (selectable by jumper).



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**Composite USB Adaptor Board**

- Should be used the same as the USB ports described in section 3.1.



DLB08

# 6 Troubleshooting

If you experience issues that may be related to connection problems, please refer to the following table for possible solutions.

| Issue | Possible Causes | Fixes |
|---|---|---|
| **LCM won't turn on.** | Insufficient supply voltage or current. | Verify if your power supply meets the LCM's voltage and current nominal ratings.<br><br>When using USB cables and adaptor boards, make sure the cable's series resistance is low enough (use high-quality cables).<br><br>When powering from on-board power circuits that use linear voltage regulators, the regulator may shut-down due to overheating. Provide adequate heat-sinking or use a higher-rated regulator. |
| | Blown reverse-polarity protection diode or overcurrent fuse, due to incorrect power supply or power surges. Overvoltage may permanently damage the LCM. | A blown diode overheats quickly. A blown fuse causes no current to be drawn by the LCM. In both cases, contact our technical support for further investigation. |
| | Poor connector or cable contact. | Visually inspect and/or gently shake the supply connector and cable, to detect possible broken solder joints or wires.<br><br>If a broken solder joint is detected, contact our technical support. If broken cable is detected, replace the cable. |
| **LCM keeps resetting (blinking or flickering).** | Insufficient supply voltage or current. | Verify if your power supply meets the LCM's voltage and current nominal ratings.<br><br>When using USB cables and adaptor boards, make sure the cable's series resistance is low enough (use high-quality cables).<br><br>When powering from on-board power circuits that use linear voltage regulators, the regulator may shut-down due to overheating. Provide adequate heat-sinking or use a higher-rated regulator. |
| | Poor connector or cable contact. | Visually inspect and/or gently shake the supply connector and cable, to detect possible broken solder joints or wires.<br><br>If a broken solder joint is detected, contact our technical support. If broken cable is detected, replace the cable. |
| **Serial Port communication completely failing.** | Rx and Tx signals reversed. | Verify your connections and make sure the Rx and Tx (also called DIN and DOUT) are correctly connected. These are the proper connections:<br>LCM Tx -> MCU Rx<br>LCM Rx <- MCU Tx |
| | Ground (GND) signal not connected. | Verify your connections and make sure that the LCM's GND signal is connected to the LCM's GND signal. |
| **Touch-panel not responding.** | Touch-panel cable not connected or ruptured. | Verify that the touch-panel's cable is in good conditions and properly connected to the board. |
| **RTC time/date settings resetting after power-down.** | Dead or unconnected battery. | Verify that the battery used is in good conditions and charged. Also, make sure the battery is properly connected to the battery holder. |