

# Proculus UnicView AD LCMs Connection Guide 1.3

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# Contents

- 1 INTRODUCTION.....4
  - 1.1 Document Overview .....4
  - 1.2 Conventions Used on this Document .....4
    - 1.2.1 Glossary .....4
    - 1.2.2 Information, Caution and Warning Statements .....4
  
- 2 LCM BOARD OVERVIEW .....5
  
- 3 USB PORTS .....6
  - 3.1 Connector Types.....6
  
- 4 SERIAL PORTS.....8
  - 4.1 Connector and Cable Types .....8
  - 4.2 Serial Communication Voltage Levels .....9
  
- 5 ADAPTOR BOARDS.....10
  - 5.1 Adaptor Board Types .....10
  
- 6 TROUBLESHOOTING.....11

# 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

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

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### 1.2.2 Information, Caution and Warning Statements

This document may contain Information, Caution and Warning statements.


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	Info	This is an Information statement. It draws attention to certain key aspects about the current topic.
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	Caution	This is a Caution statement. It describes a situation that could potentially damage your software, equipment or cause data loss.
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	Warning	This is a Warning statement. It describes a situation that could potentially cause harm or injury to you.
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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.



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

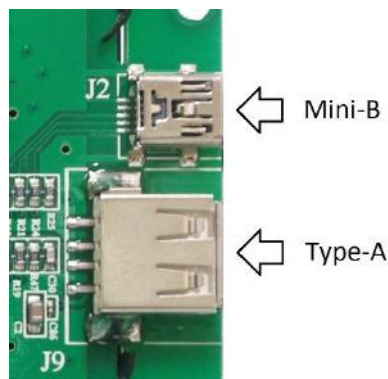
### 3.1 Connector Types

#### 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.



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



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.

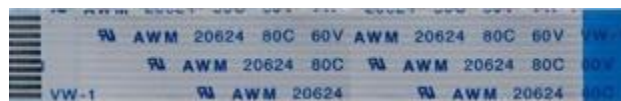
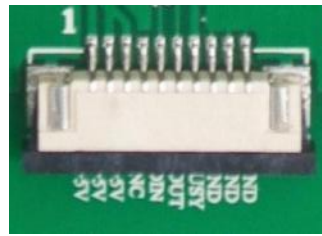


Caution Always double-check the LCM's **supply voltage range** before turning it on.

### 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.



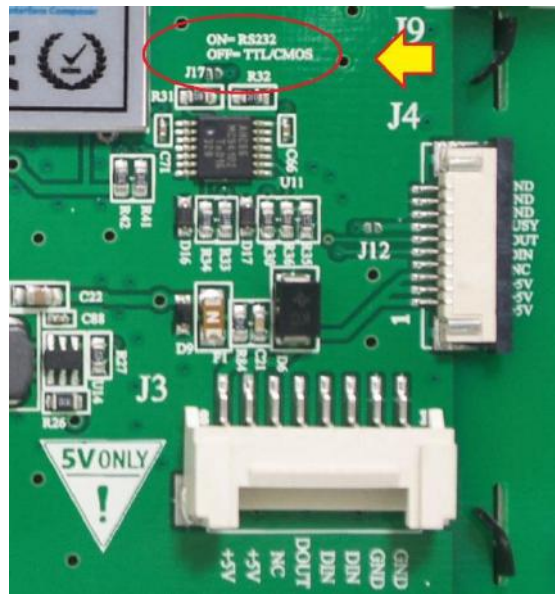
Caution All information provided in this guide are for **reference only**, and cover the typical LCM models. **Always verify** your exact model's **specifications** before making electrical connections.

## 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.



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#### 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.



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## 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
<b>LCM won't turn on.</b>	Insufficient supply voltage or current.	<p>Verify if your power supply meets the LCM's voltage and current nominal ratings.</p> <p>When using USB cables and adaptor boards, make sure the cable's series resistance is low enough (use high-quality cables).</p> <p>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.</p>
	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.	<p>Visually inspect and/or gently shake the supply connector and cable, to detect possible broken solder joints or wires.</p> <p>If a broken solder joint is detected, contact our technical support. If broken cable is detected, replace the cable.</p>
<b>LCM keeps resetting (blinking or flickering).</b>	Insufficient supply voltage or current.	<p>Verify if your power supply meets the LCM's voltage and current nominal ratings.</p> <p>When using USB cables and adaptor boards, make sure the cable's series resistance is low enough (use high-quality cables).</p> <p>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.</p>
	Poor connector or cable contact.	<p>Visually inspect and/or gently shake the supply connector and cable, to detect possible broken solder joints or wires.</p> <p>If a broken solder joint is detected, contact our technical support. If broken cable is detected, replace the cable.</p>
<b>Serial Port communication completely failing.</b>	Rx and Tx signals reversed.	<p>Verify your connections and make sure the Rx and Tx (also called DIN and DOUT) are correctly connected. These are the proper connections:</p> <p>LCM Tx -&gt; MCU Rx                      LCM Rx &lt;- MCU Tx</p>
	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.
<b>Touch-panel not responding.</b>	Touch-panel cable not connected or ruptured.	Verify that the touch-panel's cable is in good conditions and properly connected to the board.
<b>RTC time/date settings resetting after power-down.</b>	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.