

***Lane Communication
Manager
and
Scorer Interface Unit***

Installation and Setup Guide

By A.K. Microsystems International

www.touchscore.com

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1. Overview

The Scorer Interface Unit (**SIU**) is used to connect the front desk computer to the scoring and pinspotting equipment in a bowling centre.

The Lane Communication Manager (**LCM**) is the software that interfaces between the SIU and the front desk program.

The following types of scoring equipment are supported -

- A.K. Microsystems Touch Score 2
- AMF Magicscore
- AMF Accuscore 1, 2 and Plus
- AMF XL
- AMF Boss
- Brunswick AS80
- Brunswick AS90
- Brunswick AS90C
- Brunswick Frameworkorx

For the following scoring types, the firmware or software version of the scoring software must be at least the level shown. Other versions may work with some limitations, or may not work at all –

- AMF Magicscore Mark 1 boards V1.07, Mark II boards V3.21
- AMF Accuscore 1 – V3.21
- AMF Accuscore Plus - either V4.19 or later, or V5.32. Correct type must be selected in Setup.
- Brunswick AS series – V901
- Brunswick Frameworkorx – V4.1, 5.5 or 6.3
- AMF Boss or XL. V5 and V7 are supported. Note that these chassis may be configured for either an Advantage/Xenix or Boss Management/Win NT system when installed. The type selected for the **LCM** must match that to which the chassis has been configured. See also [Boss and XL IP Setting](#).

The following types of pinspotter control equipment are supported -

- AMF LIU
- AMF MCU
- Brunswick Source Command (SC920 Firmware)
- Brunswick LIU (LIU80 or LIU92 Firmware. LIU92 requires SIU 0.27 or later)
- A.K.Microsystems Pinspotter Controller (all configurations)

The **LCM** is used by the following front desk programs –

- Purrfect Desk by [Purrfect Score](#)
- Conqueror Universal by [QubicaAmf](#)

The **LCM** requires one of the following operating systems –

- Windows 2000
- Windows XP
- Windows XP SP2
- Windows Vista
- Windows 7

The **LCM** may also be used without an **SIU** for scoring systems that connect via a standard network connection, such as XL, Boss or Frameworkx. These systems require –

- USB key (or dongle) issued by [A.K.Microsystems](#).
- The USB key driver. The Sentinel Superpro driver is normally supplied with the front desk software if needed, but is also available for download from <http://www.safenet-inc.com/support>
- **WinPcap** network driver. This software is normally supplied if needed, but is also available for download from www.winpcap.org. Version 4 is needed for Windows Vista or later. Older versions of Windows can continue to use Version 3.

The **LCM** can also be used on older systems that use a Lane Interface Card (now obsolete) rather than an **SIU** to connect to the scoring.

Each **SIU** will be licensed for a particular type of desk program, scoring configuration and operating system. Upgrade fees may apply for changes to this licence. To apply for a licence, use the [LCM Application Form](#).

For Accuscore 2 or Plus (or TS2 on this type of comline), up to 4 SIUs can be used. By sharing the lanes equally amongst the SIUs on separate comlines, the speed of communications is vastly improved. This should only be necessary for larger centers with a large number of lanes.

2. Installation

Connect the **SIU** to the computer's USB port, and connect power to the **SIU**. See [Power Supply](#) for details on the required supply.

When prompted by Windows to search for a driver for the **SIU**, click **CANCEL**.

Then install the software as detailed below.

2.1. Lane Communication Manager Software

Always install the **LCM** using the install program of the particular front desk program to be used. If this is not available, run the Setup program from the **LCM** install disk or folder.

Once the software is installed, the *Lane Communication Manager Setup* program will display the available configuration options as listed below.

This program can also be used to make changes after installation, and can be found in the Start ▶ Programs folder.

See [Lane Communication Manager Setup Messages](#) for a list of possible messages from this program.

Centre Name is the name of the bowling centre. It will appear on the overheads. It must be entered exactly as provided by your supplier. If “**Unregistered Software**” or “**Unregistered Program**” appears on the overheads rather than the center name, then the Activation Key (see below) is not correct.

The center name is limited to 20 characters for Accuscore Plus scoring and 32 characters for all other scoring.

Activation Key must also be entered exactly as supplied. None of the following settings can be changed without obtaining a new activation key –

- Centre name
- Scoring type

- Number of lanes

The activation key also controls the license under which the **LCM** may be operated, and determines the following settings –

- The serial number of the **SIU** or USB key which must be present.
- The type of front desk program allowed.
- Compatible versions of Windows
- Expiry date of licence
- Allowed versions of software.

To obtain a new activation key to upgrade or change your license, contact your supplier.

For more information on what has caused the error, see the [Log File](#).

To view expiry dates or other limitations that may apply to your licence, see your Front Desk program documentation.

Alternate Activation Key. Users that wish to keep a spare **SIU** can obtain a valid key for the spare **SIU** and enter it here. The **SIUs** can then be swapped at any time without the need to enter a new key.

For systems with multiple **SIUs**, the activation key need only match the serial number of any one of the **SIUs** connected. However by obtaining an alternate key for one of the other **SIUs**, then the failure of any one **SIU** alone will not render the system unregistered.

First Lane Number is the number of the first lane to be controlled, usually 1.

Last Lane Number is the number of the last lane. The number of lanes cannot be changed without obtaining a new activation key.

Type of Scoring. This is the type of scoring that is to be connected. Note that not all front desk programs support all types. There may also be restrictions on the versions of firmware that the scoring must be using. See the overview chapter above. Contact your supplier for further details.

For Boss and XL scoring also see [Boss and XL IP Setting](#).

Note that TS2 can be installed in its default communications mode, or in one of several emulation modes.

Where TS2 is installed on *all* lanes, and J41/J42 or J3/J4 on TS2 is connected to the SIU, select **Touch Score 2** as the scoring type.

However if TS2 is installed alongside other scoring, or is using any other connection to the SIU, such as J9 provided on the Magicscore model, then TS2 is emulating one of the legacy scoring types. Select the type of scoring that TS2 is emulating. See the TS2 manual for more information.

The general type of scoring cannot be changed without obtaining a new activation key.

Network Interface Device is the network interface device or card that will be used to connect to the scoring for XL, Boss or Frameworkx scoring. It is advisable, although not essential, to use a separate interface device for the scoring to that used for other network connections.

Com Line Interface Device is the device used to connect to any of the scoring types that use a serial type connection. The options are a **Lane Interface Card** or an **SIU** connected to the USB port. If the scoring requires only a network connection, then a USB hardware key (or dongle) may be used in place of an SIU to validate the software licence.

When the scoring type is set to **Accuscore 2**, **Accuscore Plus** or **Touch Score 2**, up to 4 SIUs can be used. This provides a significant speed advantage for larger centers.

Each SIU should have its own comline connected to a number of lanes. For best performance, the lanes should be equally divided amongst the SIUs. No further configuration is required as the Lane Communication Manager will automatically find each lane regardless of the SIU it is connected to.

Note that the two **Accuscore 2/Plus** ports provided on each SIU are for electrical isolation only. There is no speed advantage in using both ports as opposed to using only one.

It is not strictly necessary to specify the number of SIUs connected in **Com Line Interface Device**, as the LCM will use as many SIUs as it finds at start-up. But specifying the number of SIUs ensures that the LCM continues to look for the correct number even if one or more SIU is not ready at start-up.

Note that the Lane Interface Card has been superseded by the **SIU**, but is still supported by this software.

Master Serial. For systems with more than one SIU, this is the serial number of the SIU to which other devices are connected – such as a pinspotter controller, IR TV controller etc. The additional SIUs are used only for the scoring chassis and not for any of these other devices.

Enter only the digits from the serial number label on the SIU.

If **Master Serial** is left blank or set to 0, then the LCM will use the first SIU that it finds upon start-up for these other devices. The order that SIUs are found depends upon which USB port they are connected to, and can be changed by rearranging the USB connections.

If a **Master Serial** number has been entered, and the master is not the first SIU found, then the LCM will automatically reconfigure the ports. This may delay start-up of the LCM for a few seconds, and will be noted in the log file.

Lane Interface Card Address and Interrupt sets the connection parameters for the Lane Interface Card, if used. These parameters must match the jumpers on the card itself.

Type of Pinspotter Controller sets the type of Pinspotter Controller or LIU that is connected.

Type of Pinspotter sets the type of the pinspotter that is connected to the Pinspotter Controller. For systems that control the pinspotter through the scoring, there will be settings elsewhere to determine the type.

Pinspotter Com Port sets the standard Windows COM port to which the Pinspotter Controller or LIU is connected. It is only used for installations that do not have a Lane Interface Card or an **SIU**, as these devices provide a built-in Pinspotter Com Port. Note that some LIUs, such as an AMF LIU, will require an RS485/RS232 convertor in order to connect to a standard Windows RS232 COM port.

Framework A/V Com Port is the standard Windows COM port which is to be connected to a Framework Audio/Visual control box.

A+ Com Speed. This determines the speed of the Accuscore Plus com ports on the **SIU**.

For Accuscore 2 or Plus scoring, this should be left at 100%.

However when only TS2s are connected to the A+ port, the speed of the data communications can be varied. Depending upon the quality and length of the cable, the number of lanes, and other factors, it may be possible to increase the speed to as much as 1000% (10 times) faster than standard Accuscore Plus communications. This will greatly speed up the downloading of graphics and the overall performance of the system.

If the speed is increased too much there will be a large number of communication errors, and lanes will frequently drop offline.

Com speed can also be slowed to below 100% to reduce errors in centres that have bad cabling or excessive electrical interference.

TV IR Controller Type and **Port** selects the type of Infra Red TV Controller that is fitted, if any.

- **TS2.** The controller is built into the TS2 scoring chassis. (Series 2 and later TS2s only)
- **IRC on SIU O/H.** Separate Infra Red Controller boxes are wired to the overhead port on the Scorer Interface Unit. (SIU Serial #0321 and later, or modified)
- **IRC on Com Port.** Separate Infra Red Controller boxes are wired to a com port on the computer. In this case the actual com port number must also be selected.

IR Detector Location and **Lane.** When a TV Infra Red Controller box is being used, there are two options for the location of the IR detector used to record button presses from the original hand held remote.

- **External on SIU Aux Port.** An external detector is fitted to the AUX port of the Scorer Interface Unit
- **Internal in IR Controller.** Each Infra Red Controller box has an inbuilt IR detector or receiver, and one of these is to be used for recording. In this case it is also necessary to specify the Lane number or ID number of the controller to be used, as set by the switches on the controller.

TV IR Setup. This button will save all current settings, close the LCM Setup program, and start the **TV Infra Red Controller Setup** program. The **TV IR Setup** program is used to configure the IR Controllers, including recording the IR commands from a TV's remote control. See the **Infra Red TV Controller Installation and Setup Guide** for more information. This program may not be included with all installations.

2.2. SIU Driver

The driver for the **SIU** will be installed with the Lane Communication Manager software.

If Windows is unable to find the driver for any reason, select browse and browse to *C:\Program Files\Lane Communication Manager*.

Note that you may receive messages that “*LCM.EXE has stopped working*” until the driver is loaded. This is normal, and should stop once the driver is installed.

For more information on the driver, see [”Unable to find SIU” message](#).

2.3. Connecting the Scoring

Connecting the scoring is simply a matter of connecting the existing cabling to the appropriate connectors on the **SIU**. The connectors on the **SIU** are generally identical to those on the original front desk equipment.

For more information see [Connector Pinouts](#) or the original scoring equipment documentation.

For multiple **SIU** installations, divide the lanes as close to equally as practical amongst the **SIUs**. Note that the two **Accuscore 2/Plus** ports on the **SIU** are provided for electrical isolation only. There is no speed advantage in using both ports as opposed to only one.

Connect all other devices such as pinspotter controllers and IR TV controllers to only one of the **SIUs**, and ensure that the serial number of this **SIU** is entered as the **Master** in setup.

2.4. Boss and XL IP Settings.

Boss and XL scoring can be configured to use either of two different IP address ranges depending upon the original front desk equipment –

- **Advantage/Xenix**
- **Boss Management System/WinNT**

For later versions of the chassis software, the configuration can be changed via the configuration menu (type **AMFXL** then **enter** at the chassis) or via switches on the bowler terminal board.

For earlier versions, a special disk must be loaded to change the configuration. Two disks are available, one for each configuration and are called **IPON** and **IPOFF** disks.

The Lane Communication Manager can operate with the chassis configured in either mode as long as the scoring type set in the **LCM** matches the configuration of the chassis. However the following restrictions apply –

- For Windows Vista or later, it is not possible to transfer files such as graphics or firmware updates to and from the chassis unless the IP is set to **Boss Management/WinNT**. Normal lane control will work with either setting.
- When using the **Boss Management/WinNT** option, the IP address of the network connection at the lane server computer must be set to 1.1.0.0. If file transfer is attempted with a different IP address, the chassis may reboot. Normal lane control will work regardless of the IP address.

To change the IP address of the computer, consult the Windows documentation as the procedure varies slightly for different versions of Windows. For Windows 7 Ultimate, go to –

- ▶ **Control Panel**
- ▶ **Network and Sharing Center**
- ▶ **Local Area Connection (or whatever the connection used for the scoring has been named)**
- ▶ **Properties**
- ▶ **Internet Protocol V4**

- ▶ **Properties**
- ▶ **Use the following IP address.**

Then enter **1.1.0.0**

As with any network installation, the firewall may also need to be configured to allow access for the scoring chassis.

3. Updates

The procedure for updating the **LCM** program is identical to that for the initial install.

It is **NOT** necessary to uninstall the old version first. If the old version is uninstalled first, it will then be necessary to re-enter all the settings.

If the update is being applied to a system that has had an older Purrfect Desk or Lane Control System installed, be sure that the **SIU** is powered up and connected during the install so that the **SIU** driver can be updated.

Only **LCM** updates that have been supplied with the front desk software should be used, as other versions may not function correctly with the current front desk software.

Updates should be performed when no one is bowling, as all current lane status information will be cleared.

4. Messages

4.1. Lane Communication Manager Messages

The Lane Server Log File contains a list of messages from the **LCM**. These messages can be useful in diagnosing problems with the system.

The Lane Server Log File can be found at –

<C:\Program Files\Lane Communication Manager\lcmlog.txt>,

The following messages may appear in the log file. This is not a complete list as there may also be additional diagnostic messages that are for [A.K. Microsystem's](#) use only.

- **An error as been found in the configuration.** This message will also include one of the following -
 - Cannot open the configuration file.
 - Invalid scorer type.
 - Invalid lane numbers (1-80).
 - Invalid board address or IRQ.
 - Invalid Pinspotter or Controller type.
 - Bad Activation Key.
 - AMF & Brunswick Equipment cannot be mixed.
 - Com Line Interface must be Lane Interface Card or SIU for this type of scoring.
 - Invalid Com speed (10-2000).
 - Invalid Com Ports.

Run the *Lane Communication Manager Setup* program to correct the problem.

- **Master SIU not on primary port.** For systems with more than one SIU, this message indicates that the master SIU was not the first SIU found. The LCM will automatically reconfigure the ports. This will cause a delay of

several seconds each time the LCM is started. Swap the master SIU to a different USB port to prevent this delay.

- **Multiple SIUs require the WDF SIU driver (Windows XP and later).** More than one SIUs has been selected in setup on a system using the old SIU driver. Only the newer driver for XP and later supports multiple SIUs.
- **Operating System not supported.** This LCM is not compatible with the current operating system or version of Windows. Contact your supplier for an upgrade.
- **Shutdown.** Normal shutdown of the LCM
- **Source Command requires an SIU or Lane Interface Card.** A Source Command pinspotter controller requires either an an SIU or an LIC and this has not been specified in the setup. Run the *Lane Communication Manager Setup* program to correct the problem.
- **Startup.** Normal start-up of the LCM.
- **The Activation Key is incorrect, it does not match the serial number of the SIU/Security Key. Lane Communications will only function for ... hours/minutes.** The activation key is valid for the current scoring and centre name, but does not match the serial number of the SIU or USB key. Contact your supplier if you need a new activation key. The LCM will stop functioning after the time shown.
- **The Activation Key is incorrect, it is not valid for this desk type. Lane Communications will only function for ... hours/minutes.** The activation key is valid for the curent scoring and centre name, but is not valid for this type of desk. For example, a Purrfect Desk key is being used with Conqueror. Contact your supplier if you need a new activation key. The LCM will stop functioning after the time shown.
- **The Activation Key is incorrect. Max allowed Windows version is X, current version is Y. Lane Communications will only function for ... hours/minutes.** The activation key is valid for the curent scoring and centre name, but is not valid for the current operating system. Contact your supplier if you need a new activation key. The LCM will stop functioning after the time shown.

- **The Activation Key is incorrect. Licence expired MM/YYYY. Lane Communications will only function for ... hours/minutes.** The activation key is valid for the current scoring and centre name, but has expired. Contact your supplier if you need a new activation key. The **LCM** will stop functioning after the time shown.
- **The Activation Key is not correct ! Lane communications will only function for 15 minutes without the correct key.** The activation key is not valid for this scoring type and center name The **LCM** will stop functioning after the time shown.
- **The scorer & pinspotter configuration you have entered cannot be used with this type of Lane Interface Card.** Some types of scoring & pinspotter combinations can only be used with later Lane Interface Cards or with an **SIU**.
- **This center name is no longer supported!** The center name is not valid for this version of software, although it may have been valid for earlier versions. For example, the generic “American Bowling Center” is no longer valid.
- **Driver Agent Error Code: x.** The driver for the Lane Interface Card has failed. Check the card’s IRQ and Address settings, or reinstall the Lane Communication Manager.
- **Unable to attached to shared memory. Error x:x.** The **LCM** and the front desk program cannot communicate. This can be a normal error when either program restarts. If this error persists, reinstall the **LCM**.
- **Unable to find SIU on USB. Error x.** Either the **SIU** is not connected, or the correct driver has not been loaded. Disconnect and reconnect the **SIU**.

The light on the **SIU** indicates the status of the driver –

- 1 flash per cycle – driver loaded and **SIU** connected to the **LCM**.
- 2 flashes per cycle – driver loaded, but the **LCM** is not running.
- 3 flashes per cycle – driver not loaded.

If prompted for the location of the driver by Windows, browse to **C:\Program Files\Lane Communication Manager**

Note that there are two types of **SIU** driver. The install program will load only the correct one. However, if the system has been upgraded from an older desk, the earlier driver may be present. Use *Device Manager* to check which driver is installed, and update it if necessary. The two drivers appear in *Device Manager* as:

Scorer Interface Unit – this is the older WDM driver, and is used for Windows prior to XP. It was also used on older versions of the **LCM** for XP.

OR

Scorer Interface Unit (WDF) – this is the newer driver and uses the latest WDF technology. It is suitable for Windows XP, Vista and 7. Other types of Windows must continue to use the older driver.

- **Unable to find the Security Key ! Error x.** Either the security key is not connected or the driver for the key has not been installed. The Superpro key driver can be found at <http://www.safenet-inc.com/support>
- **Unable to initialize Lane Communications. Error x.** An unspecified error has occurred, contact A.K.Microsystems for details.
- **Unable to initialize Network Communications. Error x. Rerun the Lane Communication Manager Setup and check the network settings. Ensure WinPcap is installed.** The LCM requires *WinPcap* to be installed in order to communicate with scoring systems that use network communications such as XL, Boss and Frameworkx. *WinPcap Version 4* is required for Windows Vista, 7 and later. Older Windows may continue to use the older *WinPcap Version 3*. *WinPcap* is available from (www.winpcap.org)
- **Unable to open A/V Unit Port. Error x.** The COM port specified for the Frameworkx A/V box cannot be opened. Make sure it is specified correctly and that no other program is using this port.
- **Unable to open Pinspotter Port. Error x.** The COM port specified for the Pinspotter Controller cannot be opened. See above.
- **Unable to open IR Port. Error x.** The COM port specified for the Infra Red TV Controller cannot be opened. See above.

- **Version Mismatch. System Stopped.** Some software modules within the LCM system are not of compatible versions. Reinstall the Lane Communication Manager.
- **Windows Vista and later requires WinCap V4.** The LCM requires *WinPcap* to be installed in order to communicate with scoring systems that use network communications such as XL, Boss and Framework. *WinPcap Version 4* is required for Windows Vista and later. Older Windows may continue to use the older *WinPcap Version 3*. *WinPcap* is available from www.winpcap.org
- **XLI MCU cannot be used with Lane Interface Card.** An XLI MCU requires an SIU.

4.2. Lane Communication Manager Setup Messages

The following messages may appear when running the *Lane Communication Manager Setup* program

**Cannot access configuration file.
Reinstall the Lane Communication Manager.**

The system cannot read the configuration file, LCM.CON.

Cannot determine Operating System type. The Lane Communication Manager may not be supported on this computer.

The system is unable to determine the type of operating system being used. If the LCM appears to function correctly, this message may be ignored. Otherwise obtain the latest LCM update.

**Illegal First or Last Lane Number !
Lanes must be between 1 and 80.
Lanes must represent pairs (eg 1-10, not 2-11).
Last Lane must be greater than First Lane.**

The range of lanes has not been specified correctly. A maximum of 80 lanes is supported.

**No network devices found !
This scoring type requires a network connection. Either no network cards were found, or the network driver WinPcap has not been installed. To install WinPcap, run the WinPcap setup program included with the Lane Communication Manager install files.**

The type of scoring that has been setup connects to the computer via a network, yet either:

- No network card is installed, or its driver has not been installed.
- WinPCap V4 has not been installed. To install, go to www.winpcap.org.
- TCP/IP networking has not been enabled on the computer. See the Windows documentation to enable TCP/IP networking.

No previous configuration found. Loading default values...

When the **LCM** is first installed, a default configuration is loaded. Enter all setup parameters as required.

Setup must disable the EnforceWriteProtection key in order to continue.

There is a compatibility issue with the Lane Interface Card driver for certain hardware types and some configurations of Windows 2000. This message notifies that setup is making a change to the system registry. No other programs should be affected.

Setup was unable to install the Lane Communication Manager. Error x.

The **LCM** has not been installed. This error is usually preceded with a more detailed error. Contact [A.K.Microsystems](http://www.akk-micro.com) for more information on the error number.

The Activation Key is not correct !

The centre name and key must be EXACTLY as shown on the licence sheet.

The scoring type and lane numbers must also match.

Click YES to continue anyway, or NO to restore previous settings.

The activation key encodes the centre name, scoring type, number of lanes and the **SIU** or hardware key serial number. None of these can be changed without obtaining a new key from your supplier or [A.K.Microsystems](http://www.akk-micro.com). Note that users of the obsolete Lane Interface Card will need to obtain a new key to run the current software.

The WinPcap network driver has not been installed and is required for this scoring type. To install WinPcap, run the WinPcap setup program included with the Lane Communication Manager install files.

An additional program called WinPcap V4 is required for scoring that connects via the network. This program is usually supplied with the **LCM**, but can also be downloaded from www.winpcap.org.

This center name is no longer supported! The center name is not valid for this version of software, although it may have been valid for earlier versions. For example, the generic “American Bowling Center” is no longer valid.

**Unable to reconfigure the board driver. Error x
Reinstall the Lane Communication Manager.**

There has been a problem configuring the Lane Interface Card. Check that the card is inserted and configured correctly. Re-install the **LCM**.

Unable to start the Lane Communication Manager. Reinstall the Lane Communication Manager.

An unknown error has prevented the **LCM** from starting. Try rebooting the computer, else reinstall the **LCM** program.

WinPcap V4 required, an older version is installed.

See the notes on WinPcap above. WinPcap has been installed, but is the wrong version. Uninstall WinpCap from *Control Panel* ▶ *Add/Remove Programs* then install the correct version (version 4) from www.winpcap.org

5. Troubleshooting.

This section details some basic troubleshooting when unable to communicate with the scoring system.

Communication problems are most likely to be caused by the scoring or cabling rather than the **SIU**.

This section deals only with the **SIU**.

- Check that the **SIU** driver is loaded. Go to **Start**, right click on **Computer**, click on **Manage** then **Device Manager**. Check that there is a valid entry for the SIU named “Scorer Interface Unit (WDM)”.

If “WDM” is not shown, and the Windows version is either XP, Vista, 7 or later then the SIU driver is an older version and must be updated. Right click the **SIU**, click **Update Driver Software** and browse to “C:\Program Files\Lane Communication Manager” and install the new driver.

Check for error messages in the Log File, which can be found at -

<C:\Program Files\Lane Communication Manager\lcmlog.txt>,

See the section on [LCM Messages](#).

- Check that the scoring system is configured correctly. Click on **Start, Programs, Lane Communication Manager Setup** and check the parameters.
- Check the LEDs on the **SIU**.

The LED on the bottom right of the box is called the Run LED and will flash a sequence of 1, 2 or 3 flashes.

- 3 Flashes – **SIU** is powered up and running, but the computer has not loaded a driver.
- 2 Flashes – A driver is loaded and the **SIU** is communicating with the computer.

- 1 Flash – The **SIU** has been initialized and is running normally.

The Run LED will also flash quickly for several seconds when loading new firmware into the **SIU**.

The remaining LEDs across the top of the SIU are grouped in pairs. There is one red and one green for each of the three ports – Scoring, Pinspotter Control and Overhead Control (Brunswick only).

The red LED indicates that the **SIU** is transmitting data, and the green LED indicates that it has received a reply. A flashing red LED without a green would indicate a faulty cable or a faulty scoring or pinspotter unit. It may also occur if the Lane Communication Manager is configured incorrectly.

Note that the Overhead green LED does not normally light, as this type of communication does not require a reply.

- Restart the **SIU**. Manually restart the **SIU** by disconnecting the power, waiting a few seconds then reconnecting. Also try connecting the **SIU** to a different USB port. Try rebooting the computer

6. Connector Pin-outs

6.1. Power Supply

The SIU requires a power supply, of 12VDC **Regulated**, @ 1 Amp.

Power Supply	
<u>Pin</u>	<u>Function</u>
1	GND
3	+12VDC

6.2. Lane Ports

AS80 Comms	
<u>Pin</u>	<u>Function</u>
1,3	RXD
2,4	TXD
14,16	GND
15,17	+12VDC

AS90 Comms	
<u>Pin</u>	<u>Function</u>
1	+12VDC
2	TXD
3	RXD
4	GND

Acc II / Plus	
<u>Pin</u>	<u>Function</u>
2	RXD-
3	CLK-
4	TXD+
5	GND
7	RXD+
8	CLK+
9	TXD-

Note: This connector is wired the same as an Advantage Home Run. If the existing cabling is wired for an Accutrack it may need to be changed.

Accuscore I	
<u>Pin</u>	<u>Function</u>
1	RXD
2	TXD+
3	TXD-
4	GND

6.3. Pinspotter Ports

Source Command	
<u>Pin</u>	<u>Function</u>
2	RXD
3	TXD
4	GND

Note: Cable from SIU to Source Command should be a crossed cable.

Bruns LIU

<u>Pin</u>	<u>Function</u>
2	TXD
4	GND
5	RXD

Note: Cable from SIU to Brunswick LIU should be a straight-thru cable.

AMF LIU

<u>Pin</u>	<u>Function</u>
1	GND
2	TXD-
3	TXD+
4	RXD+
5	RXD-
15	GND

Note: For AMF MCU, swap pins 4 & 5

Pinspotter Controller

<u>Pin</u>	<u>Function</u>
1	RXD
2	GND
3	TXD
4	GND

Note: Jumper in controller must be set to RS232 position.

6.4. Overhead Ports

AS80 Overhead	
<u>Pin</u>	<u>Function</u>
1	TXD-
2	RXD-
3	GND
4	RXD+
5	TXD+
7,8	+12VDC

Note: +12VDC, RXD+ and RXD- are only used for connection to an A.K.Microsystems IR controller, and are only available on SIUs with a serial number greater than SIU0320.

AS90 Overhead	
<u>Pin</u>	<u>Function</u>
1	TXD+
2	TXD-
3	GND