FAIRLIGHT

SX-36 Installation Manual
26 August 2013

Version 1

Introduction

SX-36 is a high-end, all-in-one I/O, synchronization and control interface, designed for audio post production systems powered by Fairlight's Crystal Core Media Engine. SX-36 offers an extensive range of analog and digital I/O, high-resolution sound, pristine remote-controlled mic preamps, precise lock to timecode and ultra low latency, making it the perfect setting for most demanding media productions.

SX-36 is available as a 1U rack mountable interface with a host of features:

• 2 Remote-controlled Microphone / Instrument preamps

• 8 balanced analog inputs

• 12 balanced analog outputs

• 9 stereo digital inputs and 11 stereo digital outputs (fully transformer-coupled AES)

• 1 stereo digital input with sample-rate conversion and 1 stereo digital outputs (S/PDIF format)

• Independent multi-machine 9-pin control

• Sync to all common framerates and formats including HD Tri-level sync, Video sync, Wordclock, AES

* Read and generate MTC and LTC

* GPI/O interface

Minimum System Requirements

The SX-36 unit has the following Minimum System Requirements:

-   FairlightAU Ratified Host PC (HP Z400/800, or Z420/820) or equivalent

-   Windows 7 Professional 64bit SP1 Operating System

-   Minimum Fairlight Software version 4.1.0
    (suits Xynergi, EVO, Xstream, Quantum, and SOLO systems)

-   CC-1 card (Rev E or later) programmed and operating with Core 404 or later

Hardware Operation

Preparing for first use

In order to prepare your SX-36 for operation, please ensure the following steps have been performed.

- Supplied DVI-I cable is connected between Host PC CC-1 card and SX-36

- IEC Mains power is supplied to SX-36

- Rear Mains Power switch is On

At this point, the SX-36 will still appear to be OFF, as the Host PC needs to be powered on before the SX-36 will "wake up". Once the Host PC is powered-on, the SX-36 status lights should show

- Blue "Power On"

- Flashing Green "Pulse OK"

Your SX-36 is now ready for operation.

Hardware Operational Settings

Front Panel Controls

The SX-36 front panel is equipped with a number of controls and indicators.

At left, the SX-36 has 4 status indicators. These give at-a-glance indication of the SX-36 operating status.

- The Blue "Power" LED indicates presence of Mains Power and correct connection to a operating CC-1-equipped Host PC.

- The Flashing Green "Pulse" LED indicates correct SX-36 internal operating status.

- The Orange "Comms" LED indicates data transfer between SX-36 unit and the Host CC-1 card.

- The Red "Status" LED is a diagnostic indicator. It should normally be OFF

Both front panel Analog Inputs are equipped with a pair of LED indicators.

- The "48V" LED indicates whether the 48V phantom-power function is currently enabled or not.

- The "Inst" LED indicates the current Analog Input mode.

    When "Inst" is ON, the Analog Input is operating in "Instrument" mode, and the TRS (1/4" Jack) line-level connections are active.

    When "Inst" is OFF, the Analog Input is operating in "Microphone" mode, and the XLR Mic-level connections are active.

The SX-36 Meter section has a "Signal Level Select" button. Pressing this button cycles through the various sets of Analog and Digital Inputs and Outputs, and determines which signal levels are being shown on the meter displays. The currently-displayed signals are indicated by the Signal Level Select LEDs.

Software Operation

Preparing for First use

In order to prepare your SX-36 for operation, please ensure the following steps have been performed on the Host PC:

- Fairlight software 4.1.0 or later has been installed

- CC-1 card has been programmed with Core 404 firmware or later
  (all CC-1 cards shipped with SX-36 units will have the latest Core loaded by default ex-factory)

- SX-36 unit has been programmed to Soft/Firmware versions 1.0.9/1.0.9 or later
  (all SX-36 units will have the appropriate Firm/Software versions loaded by default ex-factory)

- Fairlight Setup Utility "I/O Config" page has been configured with "SX36" as the primary I/O device.

Software Operational Settings

The SX-36 has some functionality which is only accessible from within the Fairlight DreamII software. To access these functions, please ensure that the DreamII software is launched, and a suitable project is open.

Configuring Sync settings

Sync Source

The SX-36 may provide synchronisation to the Host PC via various Sync Sources, or via the Internal sync signal. First, ensure the appropriate Sync Signal is connected to the SX-36. Then, enter the View > Smart Pane > Sync Setup window, and select the required Sync Source using the drop-down menu.
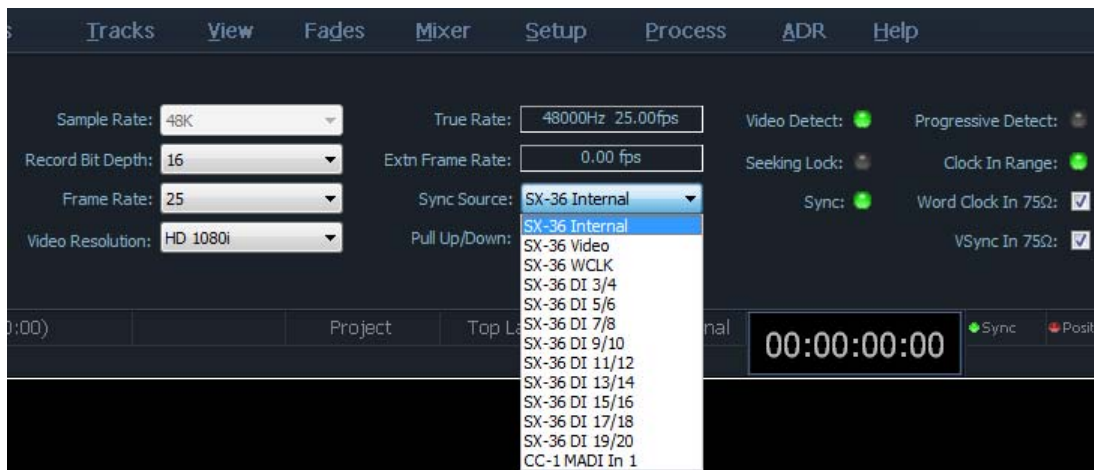
Word Clock In 75Ω Termination

The SX-36 is equipped with a WordClock Sync Input. If the SX-36 is the last device in the WordClock Sync chain, it is recommended to set Word Clock In 75Ω termination ON (Ticked).

ON (Ticked) is the default.

VSync In 75Ω Termination

The SX-36 is equipped with a Video Sync Input. If the SX-36 is the last device in the Video Sync chain, it is recommended to set Video Sync In 75Ω termination ON (Ticked).
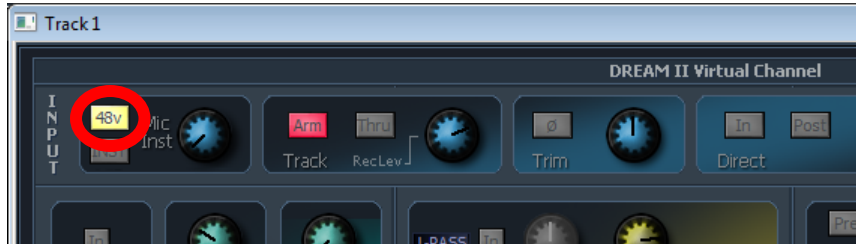
ON (Ticked) is the default

Adjusting Front Panel Analog Input settings

Analog Input 48V Phantom Power

To enable +48V Phantom power on the SX-36 front Panel Mic inputs:
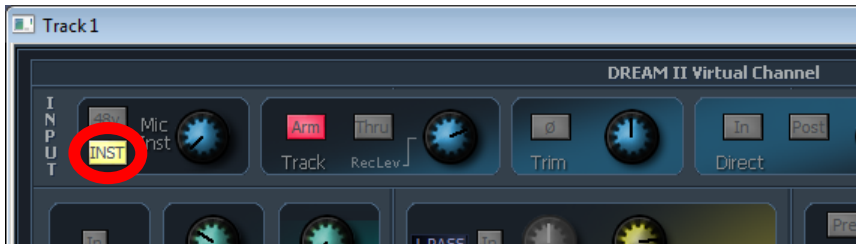
- Patch the Input to a Track or Live (Example shows Track1)
- invoke the Virtual Channel Panel (Double-click the appropriate Track/Live name tile on the Mixer)
- enable the "48V" button as shown below

Analog Input Mic/Inst

To change between "Mic" mode (Microphone level via XLR connections)
and "Inst" mode (Instrument Line level via TRS connections) on the SX-36 front Panel Mic inputs:
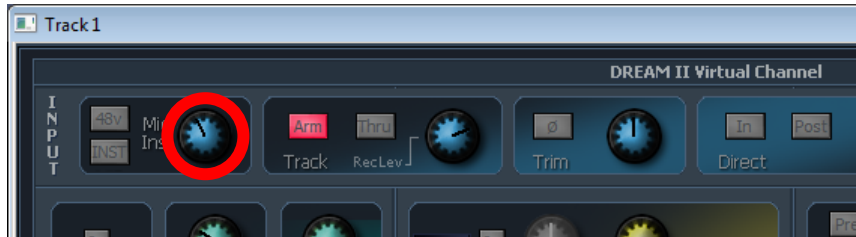
- Patch the Input to a Track or Live (Example shows Track1)
- invoke the Virtual Channel Panel (Double-click the appropriate Track/Live name tile on the Mixer)
- To invoke Inst mode select the "INST" button as shown below

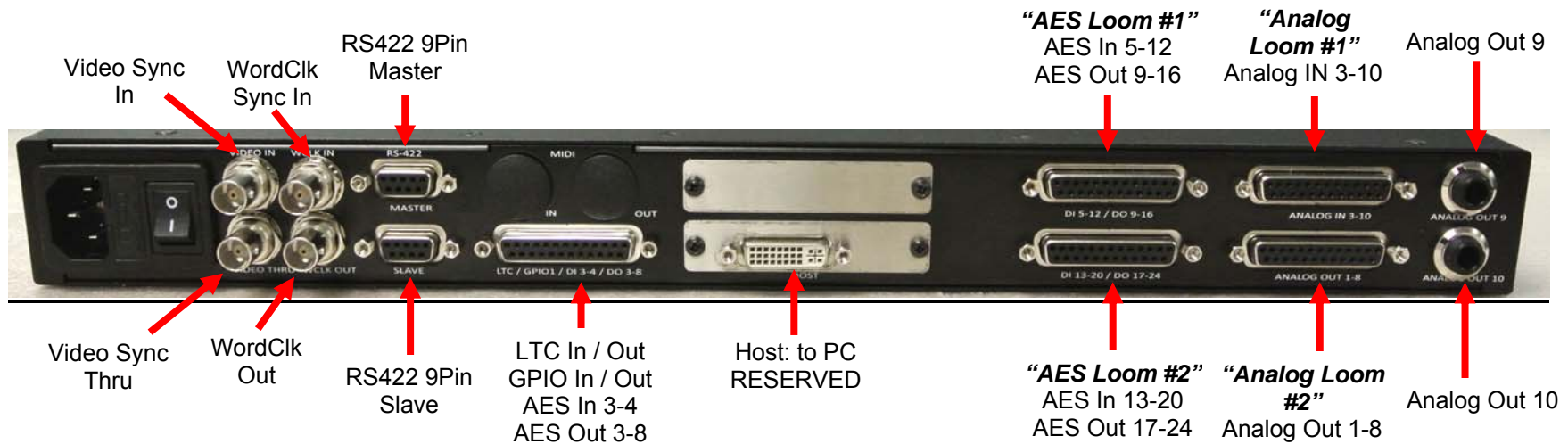

Analog Input Mic Gain/Level

To adjust the Analog Input Gain on the SX-36 front Panel Mic inputs:

- Patch the required Input to a Track or Live (Example shows Track1)
- invoke the Virtual Channel Panel (Double-click the appropriate Track/Live name tile on the Mixer)
- Using the PC mouse, adjust the Gain control as required

Front/Rear Panel I/O Connections

SPDIF In 1/2 (SRC enabled)

Analog Out 11/12

SPDIF Out 1/2

Analog In 1   Analog In 2

"AES Loom #1"
AES In 5-12
AES Out 9-16

"Analog Loom #1"
Analog IN 3-10

Analog Out 9

RS422 9Pin Master

Video Sync In   WordClk Sync In

Video Sync Thru

WordClk Out

RS422 9Pin Slave

LTC In / Out
GPIO In / Out
AES In 3-4
AES Out 3-8

Host: to PC
RESERVED

"AES Loom #2"
AES In 13-20
AES Out 17-24

"Analog Loom #2"
Analog Out 1-8

Analog Out 10

Notes:
- RS422 ports can be configured to act "in reverse" to their nominated roles, using a "cross-over" cable
- All Analog outputs are balanced, and have mute protection.

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Wiring Pin-outs

LTC/GPIO/AES Loom

AES In 3/4	Ch_1_Hot	24
	Ch_1_Cold	12
	Ch_1_GND	25
LTC In	Ch_2_Hot	10
	Ch_2_Cold	23
	Ch_2_GND	11
GPIO In	Ch_3_Hot	21
	Ch_3_Cold	9
	Ch_3_GND	22
GPIO Out	Ch_4_Hot	7
	Ch_4_Cold	20
	Ch_4_GND	8
AES Out 3/4	Ch_5_Hot	18
	Ch_5_Cold	6
	Ch_5_GND	19
AES Out 5/6	Ch_6_Hot	4
	Ch_6_Cold	17
	Ch_6_GND	5
AES Out 7/8	Ch_7_Hot	15
	Ch_7_Cold	3
	Ch_7_GND	16
LTC Out	Ch_8_Hot	1
	Ch_8_Cold	14
	Ch_8_GND	2
	NC	13

AES Loom #1

AES In 5/6	Ch_1_Hot	24
	Ch_1_Cold	12
	Ch_1_GND	25
AES In 7/8	Ch_2_Hot	10
	Ch_2_Cold	23
	Ch_2_GND	11
AES In 9/10	Ch_3_Hot	21
	Ch_3_Cold	9
	Ch_3_GND	22
AES In 11/12	Ch_4_Hot	7
	Ch_4_Cold	20
	Ch_4_GND	8
AES Out 9/10	Ch_5_Hot	18
	Ch_5_Cold	6
	Ch_5_GND	19
AES Out 11/12	Ch_6_Hot	4
	Ch_6_Cold	17
	Ch_6_GND	5
AES Out 13/14	Ch_7_Hot	15
	Ch_7_Cold	3
	Ch_7_GND	16
AES Out 15/16	Ch_8_Hot	1
	Ch_8_Cold	14
	Ch_8_GND	2
	NC	13

AES Loom #2

|		
AES In 13/14	Ch_1_Hot	24
	Ch_1_Cold	12
	Ch_1_GND	25
AES In 15/16	Ch_2_Hot	10
	Ch_2_Cold	23
	Ch_2_GND	11
AES In 17/18	Ch_3_Hot	21
	Ch_3_Cold	9
	Ch_3_GND	22
AES In 19/20	Ch_4_Hot	7
	Ch_4_Cold	20
	Ch_4_GND	8
AES Out 17/18	Ch_5_Hot	18
	Ch_5_Cold	6
	Ch_5_GND	19
AES Out 19/20	Ch_6_Hot	4
	Ch_6_Cold	17
	Ch_6_GND	5
AES Out 21/22	Ch_7_Hot	15
	Ch_7_Cold	3
	Ch_7_GND	16
AES Out 23/24	Ch_8_Hot	1
	Ch_8_Cold	14
	Ch_8_GND	2
	NC	13

Analog Loom #1

|		
Analog In 3	Ch_1_Hot	24
	Ch_1_Cold	12
	Ch_1_GND	25
Analog In 4	Ch_2_Hot	10
	Ch_2_Cold	23
	Ch_2_GND	11
Analog In 5	Ch_3_Hot	21
	Ch_3_Cold	9
	Ch_3_GND	22
Analog In 6	Ch_4_Hot	7
	Ch_4_Cold	20
	Ch_4_GND	8
Analog In 7	Ch_5_Hot	18
	Ch_5_Cold	6
	Ch_5_GND	19
Analog In 8	Ch_6_Hot	4
	Ch_6_Cold	17
	Ch_6_GND	5
Analog In 9	Ch_7_Hot	15
	Ch_7_Cold	3
	Ch_7_GND	16
Analog In 10	Ch_8_Hot	1
	Ch_8_Cold	14
	Ch_8_GND	2
	NC	13

Analog Loom #2

|		
Analog Out 1	Ch_1_Hot	24
	Ch_1_Cold	12
	Ch_1_GND	25
Analog Out 2	Ch_2_Hot	10
	Ch_2_Cold	23
	Ch_2_GND	11
Analog Out 3	Ch_3_Hot	21
	Ch_3_Cold	9
	Ch_3_GND	22
Analog Out 4	Ch_4_Hot	7
	Ch_4_Cold	20
	Ch_4_GND	8
Analog Out 5	Ch_5_Hot	18
	Ch_5_Cold	6
	Ch_5_GND	19
Analog Out 6	Ch_6_Hot	4
	Ch_6_Cold	17
	Ch_6_GND	5
Analog Out 7	Ch_7_Hot	15
	Ch_7_Cold	3
	Ch_7_GND	16
Analog Out 8	Ch_8_Hot	1
	Ch_8_Cold	14
	Ch_8_GND	2
	NC	13

GPIO connections (LTC/GPIO/AES Loom)

The SX-36 supports a single set of GPIO remote Input and Output. For basic GPI "trigger switch" contact closure, the following shows a simple trigger input example. The GPI terminals are Opto-Isolated. Therefore they will need a power source in order to function. The example below shows a simple SPST switch, using an external 5VDC and GND supply (PSU plugpack or similar).

+5VDC   ●————o o———————————● Pin 21

External Pwr Supply

GND   ●————————————● Pin 9
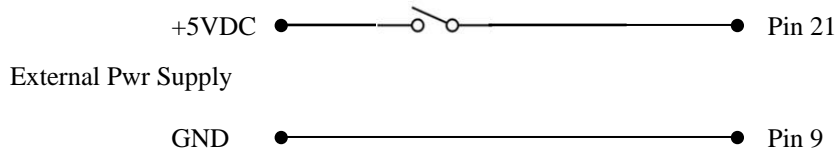
For use with 12VDC external supplies, an additional resistor will be necessary.

+12VDC ●————o o——[3k3]——● Pin 21

External Pwr Supply

GND   ●————————————● Pin 9
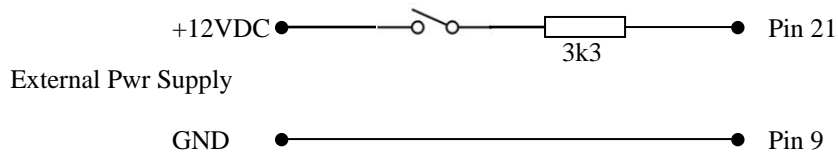
The GPO connection is a simple SPST relay switch closure. As such, it cannot drive a LED or simple "tally light" on its own. For basic GPO "LED tally" indicators, the following shows a simple example, using an external 5VDC and GND supply.

+5VDC ●——[510ohm]——▷|——● Pin 7

External Pwr Supply

GND   ●————————————● Pin 20
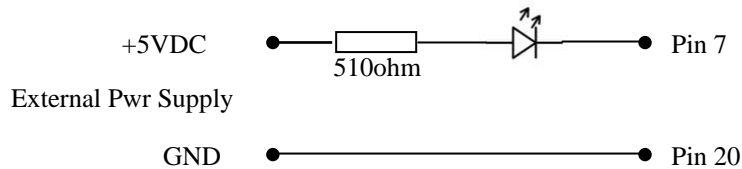
For use with 12VDC external supplies, a different value resistor will be necessary.

+12VDC ●——[1Kohm]——▷|——● Pin 7

External Pwr Supply

GND   ●————————————● Pin 20
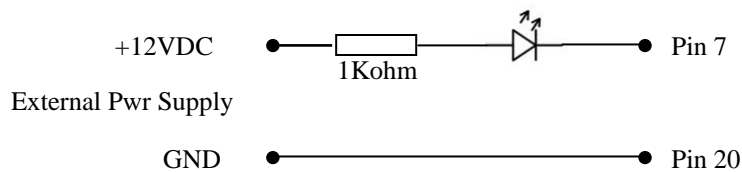
Specifications

Sample Rate:

44.1, 48, 96kHz
(+4.17%, +0.1%, -0.1%, -4%)

Max Input: **Max Output:**

Inputs 1-2 (mic) : +2.5dBu   Outputs 1-12 : +24 dBu
Inputs 1-2 (instrument) : +24dBu
Inputs 3-10 (Line) : +24dBu

Gain Range:

Inputs 1-2 : Mic Inputs:
50dB gain range
(+21.5 - +71.5dB)

Inputs 1-2 : Instrument Setting:
50dB gain range
(+0 - +50dB)

Mic E.I.N (unweighted):

Inputs 1-2 : -127dBu @ 40dB (61.5dB) gain:
150Ω source, 20Hz – 20kHz

THD+N (mic input)

Inputs 1-2 : <0.001% @ 1kHz,
-1dBFS at 0dB gain

Inputs 1-2 : <0.004% @ 1kHz,
-1dBFS at 40dB (61.5dB) gain

THD+N (line input):   **THD+N (Line Outputs):**

Inputs 1-2 : <0.001% @ 1kHz,   Outputs 1-12 : <0.002%
-1dBFS after 0dB gain (unweighted)
Inputs 3-10 : <0.001% @ 1kHz
(unweighted)

Dynamic Range (line input)   **Dynamic Range (Line Output):**

Inputs 1-2 : 108dB @ 0dB gain (unweighted)   Outputs 1-12 : 109 dB (unweighted)
Inputs 3-10 : 110dB (unweighted)

Input Frequency Response   **Output Frequency Response**:

+0.05 / -0.05dB, 20Hz — 20kHz   +0.05/-0.5dB, 20Hz – 20kHz

Input Impedance: **Output Impedance:**

Inputs 1-2 (XLR) : 2kΩ   Outputs 1-12 : 50Ωs
Inputs 1-2 (1/4") : >1MΩ
Inputs 3-10 : 15kΩ