

For more detailed installation, configuration, programming, file transfer, and operating instructions, refer to the *NI-3101-SIG NetLinX Master Controller Instruction Manual*, available online at www.amx.com.

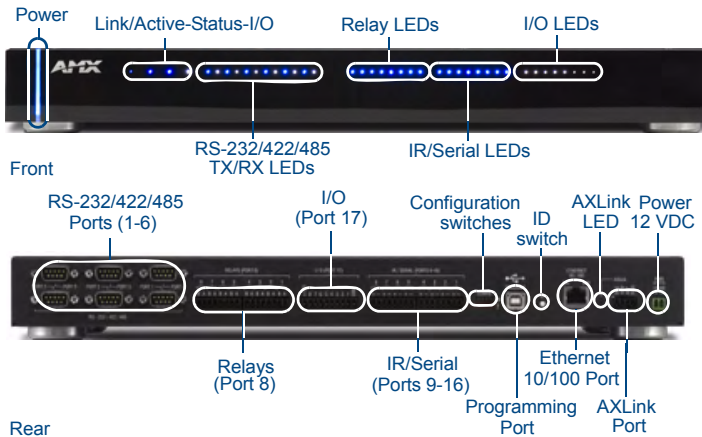


FIG. 1 NI-3101-SIG front and rear panel connectors and components

Overview

The NI-3101-SIG Signature Series NetLinX Integrated Controller (**FG2105-08**) satisfies the control and automation features common in a larger area or multiple rooms, which may include the integration of a larger number of devices including VCR and DVD players, projectors, lighting, thermostats and other electronic equipment. In technology-driven environments, this solution allows for the future addition of more devices and control capabilities.

The NI-3101-SIG features an easy-to-install form factor that mounts into 1 unit of rack space and provides extended rack depth to simplify rear connections. Its sleek, gloss black faceplate complements the Tango Distributed Audio line and Metreau Keypads. For smaller business and home applications, the NI-3101-SIG includes just the right mix of ports and features.

ATTENTION: Verify that you are using the latest NI firmware and the latest version of NetLinX Studio (available for download from www.amx.com).

Specifications

NI-3101-SIG Specifications	
Dimensions (HWD):	<ul style="list-style-type: none"> 2" x 17" x 10" (5.1 cm x 43.2 cm x 26.35 cm) 1 RU (rack unit) high
Power Requirement:	<ul style="list-style-type: none"> 900 mA @ 12 VDC
Memory:	<ul style="list-style-type: none"> 64 MB SDRAM 256 MB Flash 1 MB Non-volatile (NV) SRAM
Weight:	<ul style="list-style-type: none"> 6.95 lbs (3.15 kg)
Enclosure:	<ul style="list-style-type: none"> Metal with black matte finish and translucent polycarbonate faceplate
Certifications:	<ul style="list-style-type: none"> FCC Part 15 Class B CE IEC 60950
Front Panel:	
POWER	<ul style="list-style-type: none"> Blue LED bar lights when powered up.
LINK/ACTIVE	<ul style="list-style-type: none"> Blue LED blinks when the Ethernet cable is connected and an active link is established. This LED also blinks when receiving Ethernet data packets.
Status	<ul style="list-style-type: none"> Blue LED blinks to indicate that the system is programmed and communicating properly.
Input/Output	<ul style="list-style-type: none"> White Output LED blinks when the Controller transmits data, sets channels On/Off, sends data strings, etc. White Input LED blinks when it receives data from button pushes, strings, commands, channel levels, etc.
RS-232/422/485 LEDs	<ul style="list-style-type: none"> Six sets of blue and white LEDs light to indicate the rear DB9 Ports 1 - 6 are transmitting or receiving RS-232, 422, or 485 data.

NI-3101-SIG Specifications (Cont.)

Relay LEDs	<ul style="list-style-type: none"> Eight blue LEDs light to indicate the rear relay channels 1 - 8 are active (closed).
IR/Serial LEDs	<ul style="list-style-type: none"> Eight blue LEDs light to indicate the rear IR/Serial channels 1 - 8 are transmitting control data on Ports 9 - 16.
I/O LEDs	<ul style="list-style-type: none"> Eight white LEDs light when the rear I/O channels 1-8 are active.
Rear Panel:	
RS-232/422/485 (Ports 1 - 6)	<ul style="list-style-type: none"> Six RS-232/422/485 control ports using serial (male) connectors with XON/XOFF (transmit on/transmit off), CTS/RTS (clear to send/ready to send), and 300-115,200 baud. Channel range = 1-255. Channels 1-254 provide feedback. Channel 255 (CTS Push channel): Reflects the state of the CTS Input if a 'CTSPSH' command was sent to the port. Output data format for each port is selected via software. Six DB9 connectors provide RS-232/422/485 termination.
Relay (Port 8)	<ul style="list-style-type: none"> Eight-channel single-pole single-throw relay ports. Independent control for each relay. Supports up to 8 independent external relay devices. Channel range = 1-8. Each relay can switch up to 24 VDC or 28 VAC @ 1 A. Two 8-pin 3.5 mm mini-Phoenix (female) connectors provide relay termination.
Digital I/O (Port 17)	<ul style="list-style-type: none"> Eight-channel binary I/O port for contact closure. Each input is capable of voltage sensing. Input format is software selectable. Interactive power sensing for IR ports. Channel range = 1-8. All inputs are assigned to respective IR/Serial ports for "automatic" power control through the use of software commands. Power control is provided via commands such as: 'PON', 'POF', 'POD', 'DELAY', I/O Link etc.). Contact closure between GND and an I/O port is detected as a PUSH. When used as voltage input - I/O port detects a low signal (0- 1.5 VDC) as a PUSH and a high signal (3.5 - 5 VDC) as a RELEASE. When used as an output - each I/O port acts as a switch to GND and is rated at 200 mA @ 12 VDC. 10-pin 3.5 mm mini-Phoenix (female) connector provides I/O port termination. Note: This IO port uses 5V logic but can handle up to 12V without harm, and can handle up to 12V on the input. Higher voltages run a higher risk of surge damage.
IR/Serial (Ports 9 - 16)	<ul style="list-style-type: none"> Eight IR/Serial control ports support high-frequency carriers up to 1.142 MHz. Each output is capable of three electrical formats: IR, Serial, and Data. Eight IR/Serial data signals can be generated simultaneously. Channel range = 1-32,767. Channels 1-128 (output): IR commands. Channels 129-253: used as reference channels. Channel 254 (feedback): Power Fail (used with 'PON' and 'POF' commands). Channel 255 (feedback): Power status (when IO Link is set). IR ports support data mode (at limited baud rates and wiring distances). Two 8-pin 3.5 mm mini-Phoenix (female) connectors provide IR/Serial port termination.
Configuration port	<ul style="list-style-type: none"> USB connector (male) can be connected to a USB port on a computer. This low-speed USB connection is used to configure system settings. Not recommended for firmware updates or large file transfers.
Configuration DIP switch	<ul style="list-style-type: none"> Sets the on-board Master execution mode.
ID pushbutton	<ul style="list-style-type: none"> Provides the NetLinX ID (Device only) assignment for the device. The D notation is used to represent a device number.
Ethernet port	<ul style="list-style-type: none"> RJ-45 port for 10/100 Mbps communication. This port automatically negotiates the connection speed (10 Mbps or 100 Mbps) and whether to use half duplex or full duplex mode.
AXlink LED	<ul style="list-style-type: none"> Green LED indicates the state of the AXlink connector port.
AXlink port	<ul style="list-style-type: none"> 4-pin 3.5 mm mini-Phoenix (male) connector provides data and power to external control devices.

NI-3101-SIG Specifications (Cont.)	
Power port	<ul style="list-style-type: none"> 2-pin 3.5 mm mini-Phoenix (male) connector.
Included Accessories:	<ul style="list-style-type: none"> 2-pin 3.5 mm mini-Phoenix (female) PWR connector (41-5025) 4-pin 3.5 mm mini-Phoenix (female) AXlink connector (41-5047) 10-pin 3.5 mm mini-Phoenix (female) I/O connector (41-5107) Installation Kit (KA2105-02): Two rack mount ears and four #8-32 Phillips flat head screws NI-3101-SIG Quick Start Guide Two 8-pin 3.5 mm mini-Phoenix (female) Relay connectors (41-5083) Two CC-NIRC IR Emitters
Other AMX Equipment:	<ul style="list-style-type: none"> 2-pin 3.5 mm mini-Phoenix male connector (41-5026) CC-NIRC IR cables (FG10-000-11) CC-NSER IR/Serial cables (FG10-007-10) CSB Cable Support Bracket (FG517) NCK, NetLinX Connector Kit (FG2902) USB A to B cable (FG10-2105)

Connections and Wiring

FIG. 1 shows the layout of the connectors and components located on the rear of the NI-3101-SIG NetLinX Integrated Controller. For more information on connections and wiring, please refer to the *NI-3101-SIG NetLinX Master Controller* Instruction Manual, available online at www.amx.com.

Wiring a power connection

Use a 12 VDC-compliant power supply to provide power to the Integrated Controller through the rear 2-pin 3.5 mm mini-Phoenix. Use the power requirements information listed in the Specifications table to determine the power draw.

The incoming PWR and GND cable from the PSN power supply must be connected to their corresponding locations within the PWR connector. Refer to the *NetLinX Integrated Controllers* Instruction Manual for more detailed wiring connection information.

RS-232/422/485 wiring connector information

FIG. 2 shows the pinout and wiring specification information for the rear RS-232/RS-422/RS-485 (DB9) Device Ports. These ports support most standard serial mouse control devices and RS-232 communication protocols for PC data transmission (NI-3101-SIG uses Ports 1 - 6).

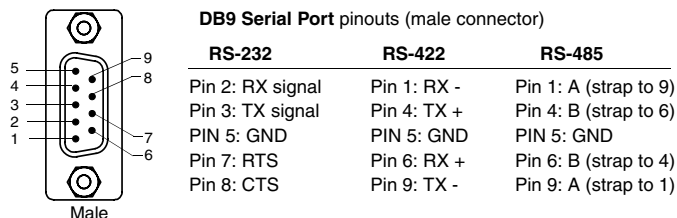


FIG. 2 RS-232/422/485 DB9 (male) connector pinouts

NOTE: Some DB9 mating connectors may have back shells that are too thick in profile for two connectors to be installed in adjacent vertical ports. To avoid this situation, the connector back shells should be limited to 0.62 inches (1.57 cm) thick.

RJ-45 Connections

Use a standard CAT5 Ethernet cable to provide communication between the Integrated Controller and external NetLinX devices.

Ethernet 10/100 Base-T Connector

The Ethernet cable provides 10/100 network connectivity between the panel and the NetLinX Master (FIG. 3).

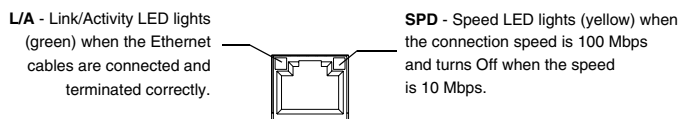


FIG. 3 Layout of Ethernet LEDs

Preparing the NI-3101-SIG for Serial Communication

- Launch NetLinX Studio 2.x (default location is **Start > Programs > AMX Control Disc > NetLinX Studio 2 > NetLinX Studio 2**).

- When first connecting to the USB configuration port, follow the Windows® instructions for installing the appropriate USB/Serial port driver.
- Select **Settings > Master Communication Settings**, from the Main menu, to open the *Master Communication Settings* dialog box.
- Click the **Communications Settings** button to open the *Communications Settings* dialog.
- Click the **NetLinX Master** radio button (from the Platform Selection section) to indicate you are working with a NetLinX Master.
- Click the **Serial** radio button (from the Transport Connection Option section) to indicate you are connecting to the Master via a COM port.
- Click the **Edit Settings** button (on the *Communications Settings* dialog) to open the *Serial Settings* dialog and set the COM port parameters to 115.2K baud, N, 8, 1.
- Click the **OK** button three times to return to the main application.
- Right-click the **Online Tree** tab entry and select **Refresh System**.
- Assign a System Value by using **Diagnostics > Device Addressing** from the Main menu.
- Enable the **Change System selection** by clicking on it and then enter the current and new System values.
- Click the **Change Device/System Number** button; when finished, click **Done**.
- Select **Tools > Reboot the Master Controller** to access the *Reboot the Master* dialog, then click **Reboot** to restart the Master and incorporate any changes.
- Once the dialog replies with "Reboot of system complete", click **Done** and then click the **OnLine Tree** tab in the Workspace window to view the devices on the System. The default System value is one.
- Right-click on the *Empty Device Tree/System* entry and select **Refresh System** to re-populate the list.

Configuring the NI-3101-SIG for Ethernet Communication

Before continuing, complete the COM port steps above.

- Connect an Ethernet cable to the unit's rear Ethernet connector.
- Select **Diagnostics > Network Address** from the Main menu and enter the System, Device (0 for a Master), and Host Name information.
- To configure the Address:
 - Use a DHCP Address by selecting the **Use DHCP** radio button, then click the **GET IP** button to obtain a DHCP Address from the DHCP Server, click the **SET IP Information** button to retain the new address, and then finish the process by clicking the **Reboot Master > OK** buttons.
 - Use a Static IP Address by selecting the **Specify IP Address** radio button, enter the IP parameters into the available fields, then click the **SET IP Information** button (to retain the pre-reserved IP Address to the Master), and then click the **Reboot Master > OK** buttons to finish the process.
- Repeat steps 1 - 5 from the previous section but rather than selecting the **Serial** option, choose **TCP/IP** and edit the settings to match the IP Address you are using (whether Static or IP).
- Click on the **Authentication Required** radio box (if the Master is secured) and press the **User Name and Password** button to enter a valid username and password being used by the secured Master.
- Click the **OK** button three times to return to the main application.

Setting the Configuration DIP Switch

The Configuration DIP switch is used to set the on-board Master to Program Run Disable (PRD) mode, according to the settings listed in the table below:

PRD Mode Settings	
PRD Mode	Position 1
Normal mode (default)	OFF
PRD Mode	ON

The PRD mode prevents the NetLinX program stored in the on-board Master from running during the device's power-up. This mode should only be used if the resident NetLinX program is causing inadvertent communication and/or control problems. If necessary, place the on-board Master in PRD mode and use the NetLinX Studio v 2.x program to resolve the communication and/or control problems with the resident NetLinX program. After doing so, download the corrected program, reset the configuration DIP switch to normal mode, recycle power, and try again.

