Serial Communications - NAI's serial communication smart function modules provide up to 8 high-speed, programmable RS-232, RS-422, RS-485, non-isolated communication channels. Each channel is programmable for either Serial Communications (SC) protocol or General Purpose I/O (GPIO) modes as either RS-422/485 (differential) or RS-232 (single ended) hardware level interfaces. Each channel has one Transmit and one Receive signal pair (±) available as applicable. Synchronous (SYNC) communications mode (added feature) automatically configures the clock (clk) signal(s) on the companion pair channel: CH1-CH4 clk companion channels are CH5-CH8, respectively.

Module	Description
SC1	4 Serial Communication Channels, multi-mode programmable, non-isolated
SC2	4 Serial Communication Channels, multi-mode programmable, isolated
SC3	8 Serial Communication Channels, programmable RS-232/422/485 non-isolate
SC7	4 Serial Communication Channels, multi-mode programmable, non-isolated

Key Features

SC1, SC2, SC7

- Each channel can be programmed into a Loop-Back mode that internally wraps the transmitter around the receiver without the need of external wiring.
- An additional asynchronous mode to support "Immediate Transmit" operation results in Serial Data Transmit Enhancement. Each channel has its own Transmit and Receive buffer where total aggregate
- buffer allocation is user configurable/programmable up to 64 MB.
- A Receiver Enable/Disable function allows the user to turn selected receivers ON/OFF.
- This serial card can operate in an Interrupt-Driven Environment to provide notification of all events to the system. When a flow control mode is selected, the serial card does the operation automatically with minimal system intervention.
- Multi-Drop Link Mode: The transmitter and receivers of up to 32 cards can be tied together in either Half or Full-Duplex mode.
- Built-in Test

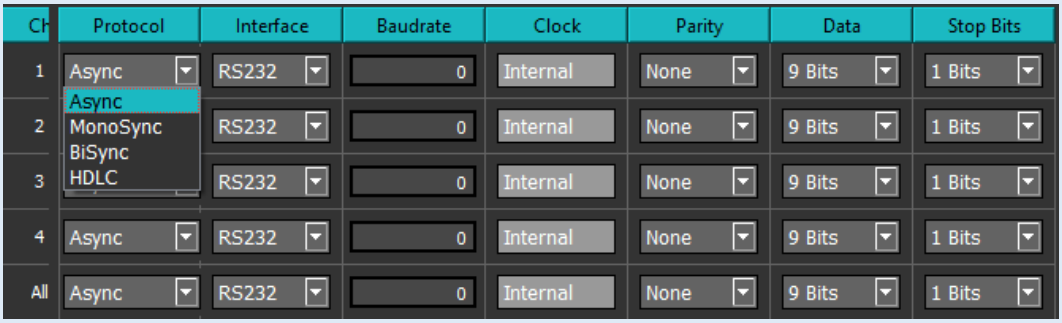
SC3

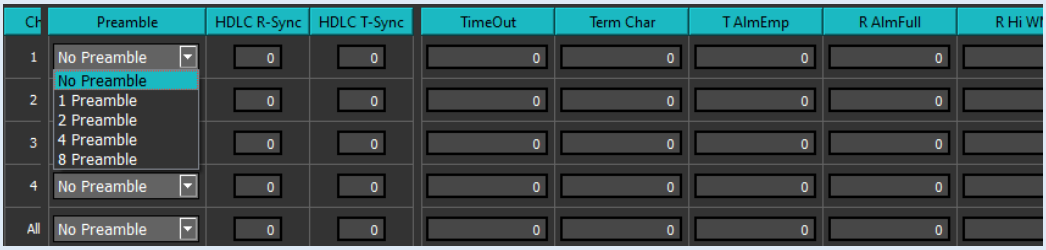
- Eight (8) high-speed, programmable RS-232, RS-422, RS-485, non-isolated communication channels that can be programmed as 8 async or 4 sync channels. Sync (added feature) sets up the clock (clk) signal(s) on the companion pair channel: CH1-4 clk companion channels are CH5-8, respectively.
- General Purpose Input/Output (GPIO) mode available
- Data transfers within two baud clocks for Async communications, 15 for Sync communications.
- Digital Noise filtering on Receivers
- A Receiver Enable/Disable function allows the user to turn selected receivers ON/OFF.
- This serial module can operate in an Interrupt-Driven Environment to provide notification of all events to the system. When a flow control mode is selected, the serial card does the operation automatically with minimal system intervention.
- 1MBx16 Receive and Transmit buffers.
- Built-in Test

New Embedded Soft Panel

North Atlantic Industries offers the newest cross platform (Windows and Linux) GUI for our Gen 5 products that allows a user to quickly interact with our broad range of modular, I/O cards and rugged embedded computing products. Embedded Soft Panel 2 (ESP 2) is coherent and easy to use with a clean, fleshed out UI with features such as drag and drop dock able windows, a dark and light theme, and multi-language support. Multiple ways to open a board are offered, including saving board opening settings for future use. Interacting with and collecting information on hardware is simple to do with the register editor for reading and writing specific addresses, and the API logger which logs all API library calls including their return status and parameters. ESP 2 has many new features and provides an organized and effortless interface for NAI's next generation products. Available for CentOS 7.4 and 8.2 and Windows 10 x64

SC1 Example Demo Mode



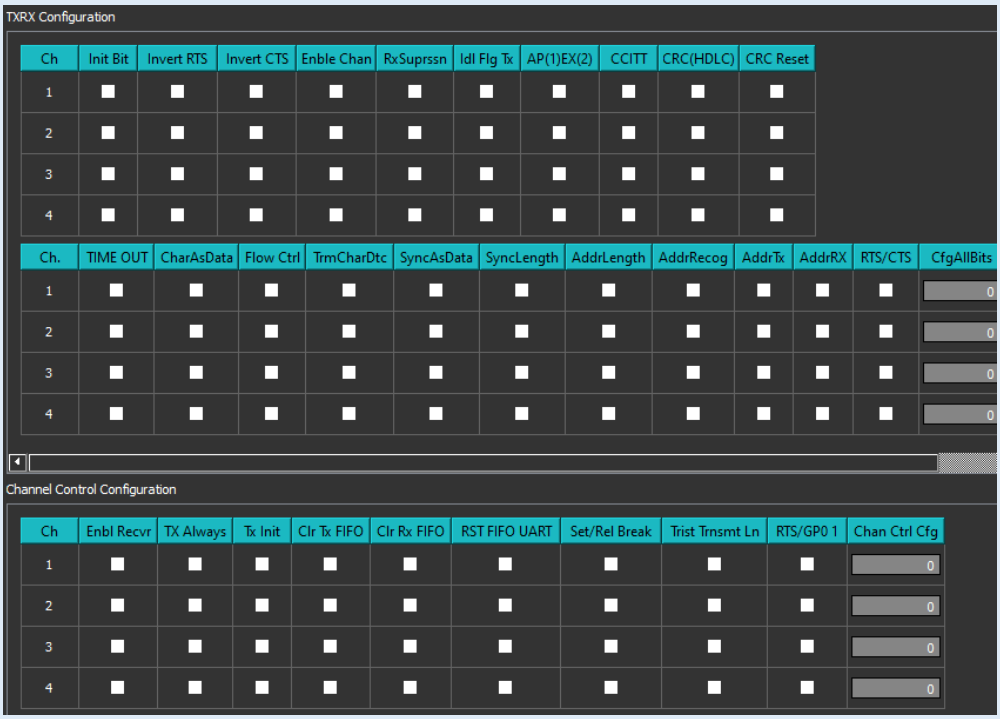


Tx

Channel	Enable	Data	Buff Ctn	Bytes TX	Load Buffer	Tx Initiate
1	☐	0	0	0	Load Buffer	Transmit
2	☐	0	0	0	Load Buffer	Transmit
3	☐	0	0	0	Load Buffer	Transmit
4	☐	0	0	0	Load Buffer	Transmit
All	☐	0	0	0	Load All	Transmit All

Rx

Channel	Enable	Data Rx	Buff Cnt	Receive
1	☐	0	0	Receive
2	☐	0	0	Receive
3	☐	0	0	Receive
4	☐	0	0	Receive
All	☐	0	0	Receive All



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Rev. A