



Quick Start Manual

2002 Series with A-B 1771 Remote I/O Interface

Getting Started

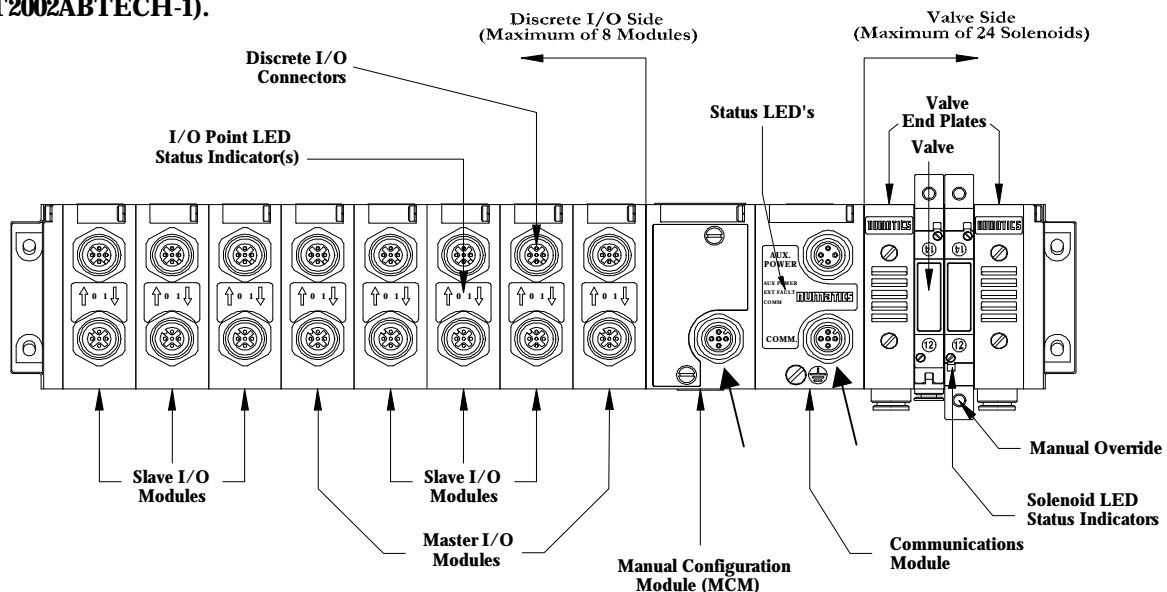
This is a brief document designed to quickly get you started setting up your 2002 Series valve manifold with integrated Numatics' G2-1 A-B 1771 Remote I/O communication protocol. Please note that this document is **not intended** to replace the 2002 Series A-B 1771 Remote I/O Technical Manual (Pt. No. LT2002ABTECH-1) which includes more detailed technical information. The full technical manual can be found on the Numatics website at www.numatics.com or can be ordered by calling 248-887-4111.

1) Initial Unpacking and Inspection

- 1) Examine exterior of package for signs of damage. Report any damage to shipping carrier.
- 2) Remove wrapped manifold assembly from box.
 - a) Remove manifold assembly from anti-static packaging
 - b) Retain documentation for installation and configuration
- 3) Examine manifold assembly for any shipping damage such as:
 - a) Bent pins or connectors
 - b) Report any damage to shipping carrier immediately
- 4) Examine manifold assembly for proper ordered configuration. (Valves, I/O, Communication Protocol, etc.)

2) 2002 Basics

Below is an example of a 2002 series manifold. This fieldbus manifold series uses our G2-1 electronics and is capable of addressing a total of 40 I/O. The manifold can be viewed as having two sections to it, the *Valve Side* and the *Discrete I/O Side*. The *Valve Side* supports a maximum of 24 solenoids coils and the *Discrete I/O Side* supports a maximum of 16 I/O. The manifold configuration may not exceed 1/4 rack size (32 outputs and/or 32 inputs). The communication module has two connectors: a 5-pin communication connector and a 4-pin power connector. An additional connector is located on the MCM module and can be used as an optional "Bus Out" connection. Pin outs for these, along with I/O connectors, are labeled on the side of the respective modules, and detailed in the A-B 1771 Remote I/O Technical Manual (Pt. No. LT2002ABTECH-1).

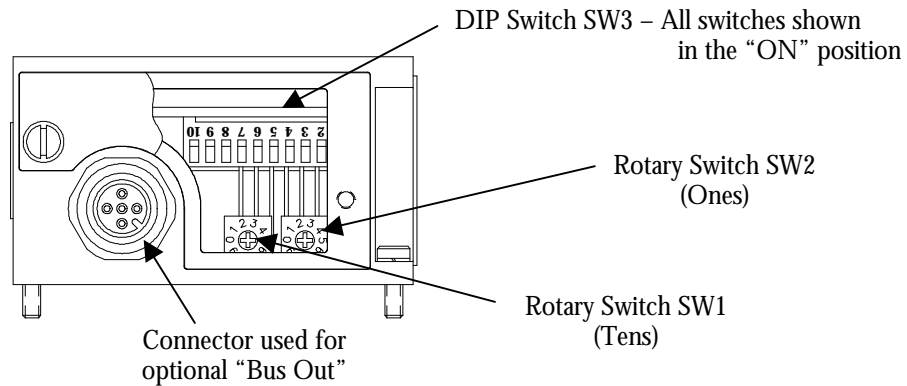




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3) MCM - Manual Configuration Module



The MCM is a configuraton module that allows the user to manually set baud rate, address and other user definable options. The MCM consists of two rotary switches (SW1 & SW2) and one DIP switch (SW3).



DIP and rotary switch settings do not take effect until power is cycled (turned OFF and ON).

Rotary Switch Settings (SW1 & SW2)

Rack Address (Decimal):

Switch	Description
SW1	Sets the Tens Digit (MSD)
SW2	Sets the Ones Digit (LSD)



- ***Address is set to a factory default setting of 00 prior to shipment.***
- ***Node addresses may only be assigned once per network.***

DIP Switch Settings (SW3)

Baud Rate:

SW3-1	SW3-2	Kbaud
*Off	*Off	57.6
Off	On	115.2
On	Off	230.4
On	On	230.4

***Factory Default Setting**



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DIP Switch Settings (SW3) Continued

Internal Terminating Resistors:

SW3-3	SW3-4	Description
*Off	*Off	Resistors disabled
Off	On	150 ohm resistor enabled
On	Off	82 ohm resistor enabled
On	On	Not allowed

Processor Restart/Lockout:

Switch	Setting	Description
SW3-5	*Off	Processor Restart
SW3-5	On	Processor Lockout

Hold Last State/Reset:

Switch	Setting	Description
SW3-6	*Off	Reset Outputs
SW3-6	On	Hold Last State

Starting Quarter:

SW3-7	SW3-8	Quarter
*Off	*Off	1st
Off	On	2nd
On	Off	3rd
On	On	4th

I/O Logic State (Relevant only for input module part numbers prior to 239-1800):

Switch	Setting	Sinking Input Switch (NPN)	Sourcing Input Switch (PNP)	Input Status Bit
SW3-9	*Off	Made = 1 Not Made = 0	Made = 0 Not Made = 1	No Fault = 0 Fault = 1
SW3-9	On	Made = 0 Not Made = 1	Made = 1 Not Made = 0	No Fault = 1 Fault = 0

Manifold Valve Output Configuration

(Relevant only for Communication Module part number 239-1804 and higher):

SW3-10	Valve Side Coil Outputs
*On	24
Off	16

*Factory Default setting



- Solenoid coil output drivers are factory allocated to 24. Changes to this setting can be made via DIP switch SW3-10.
- Manifold Configuration may not exceed ¼ rack size (32 outputs and/or inputs).



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4) I/O Mapping

Example #1

Here is an example of the I/O mapping on a 2002 Series Remote I/O manifold.

For more detailed technical information and examples, including additional I/O table and status input mapping schemes, please see the 2002 A-B 1771 Remote I/O Technical Manual (Pt. No. LT2002ABTECH-1).

Assumed Settings

- Manifold I/O Size = 1/4 Rack
- Starting Quarter = 1st
- Valve Output Configuration = 24 Coils
- Single Z-Boards™ used with single solenoid valves
- Double Z-Boards™ used with double solenoid valves

Discrete I/O Configuration

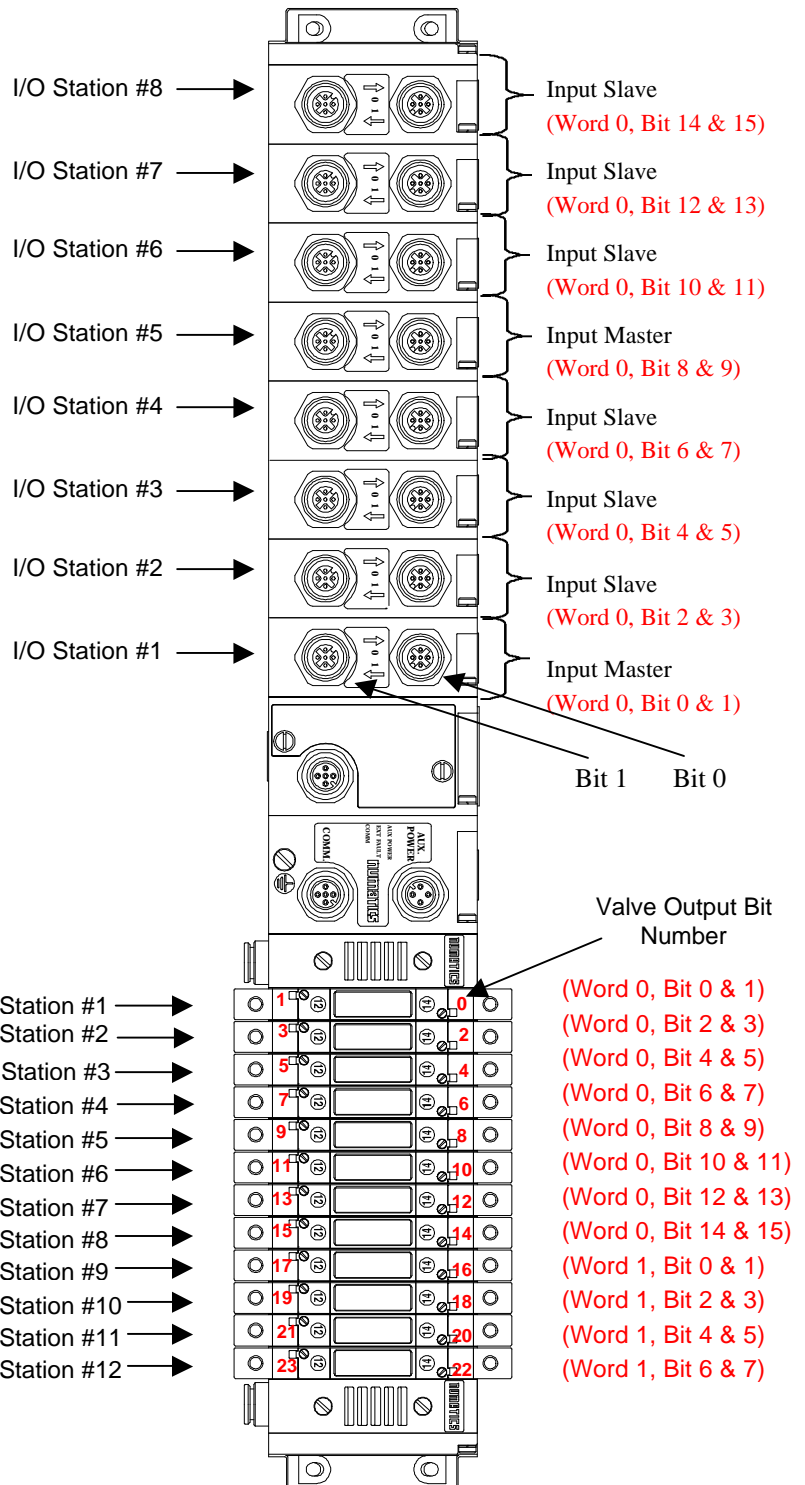
I/O Sta. #	I/O Type	Part #
1	Input Master	239-1802
2	Input Slave	239-1803
3	Input Slave	239-1803
4	Input Slave	239-1803
5	Input Master	239-1802
6	Input Slave	239-1803
7	Input Slave	239-1803
8	Input Slave	239-1803

Manifold I/O Configuration

Outputs and Mapping Location	
Total Outputs = 24	
-Valve Outputs = 24	Word 0, Bits 0-15 Word 1, Bits 0-7
-Discrete Outputs = 0	--

Inputs and Mapping Location	
Total Inputs = 16	
-Discrete Inputs = 16	Word 0, Bits 0-15
-Status Inputs = 0	--

Note: Output Drivers have Status input bits which show whether loads (coils) are open or shorted. These Status Input Bits are allocated and mapped before the physical discrete inputs.





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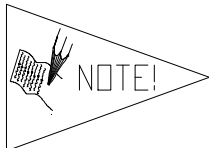
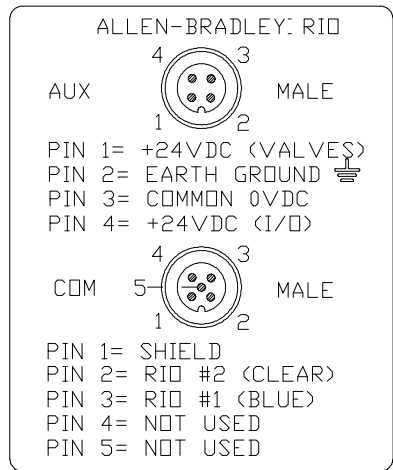
5) Communication Module Connector Pinouts

Remote I/O Communication Connector Pinout

Pin #	Function	Description
1	Shield	Cable shield
2	Clear	RIO Line #2
3	Blue	RIO Line #1
4	Not Used	
5	Not Used	

Auxiliary Power Connector Pinout

Pin #	Function	Description
1	+24VDC (Valves)	Voltage Used to Power Valves
2	Earth Ground	Protective Earth
3	0VDC Common	0VDC Common, for Valve and I/O Power
4	+24VDC (Node and Discrete I/O)	Voltage Used to Power Discrete I/O and Node Electronics



- **Maximum pin capacity on pin #3 (0VDC common) of auxiliary power connector is 4 Amps. The combined draw of Pin #1 (Valves) and pin #4 (Node & Discrete I/O) cannot exceed 4 Amps, at any given moment in time.**
- **Auxiliary power connector pin #4 supplies power to node electronics. This pin must be powered at all times for communication node to be functional.**



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6) Factory Defaults Settings

Unless otherwise requested, all standard 2002 Series A-B 1771 Remote I/O manifolds ship with the specific factory default settings listed below:

Description	Default
Node Address	00
Baud Rate	57.6 Kpbs
Manifold I/O Configuration	24 Valve Coils, 16 Discrete I/O
Internal Terminating Resistor	Resistors Disabled
Processor Restart/Lockout	Processor Restart
Hold Last State/Reset	Reset Outputs
Starting Quarter	1st
I/O Logic State	Off

7) Technical Support

For technical support, contact your local Numatics distributor. Additional assistance is available from Numatics Inc. at (248) 887-4111 and ask for Technical Support.

Issues relating to network set-up, PLC programming, sequencing, software related functions, etc... should be handled with the appropriate product vendor.

Information on technical manuals, local distributors, and other Numatics, Inc. products and support issues can be found on the Numatics, Inc's. WEB site at www.numatics.com