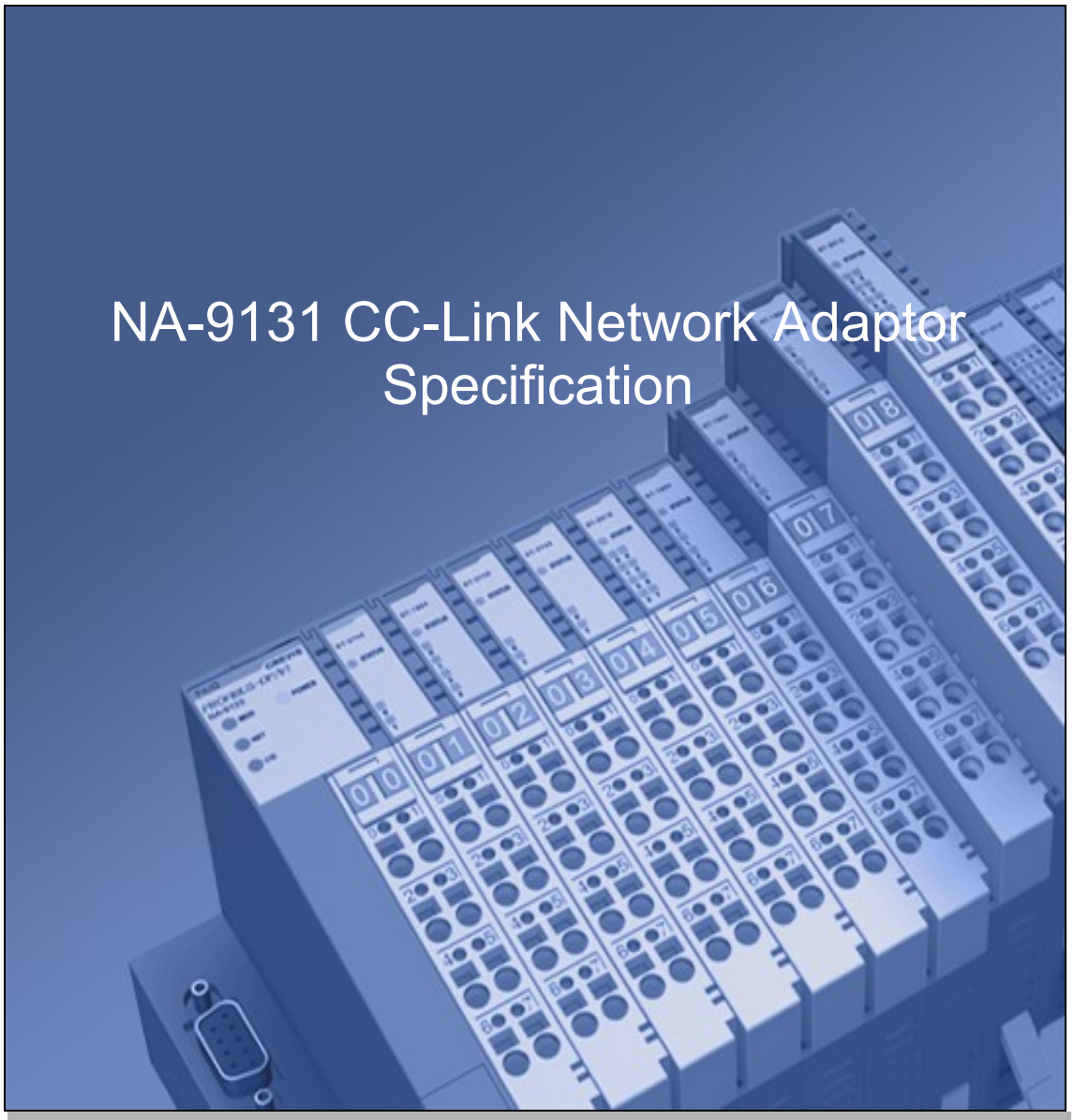
NA-9131 CC-Link Network Adaptor Specification



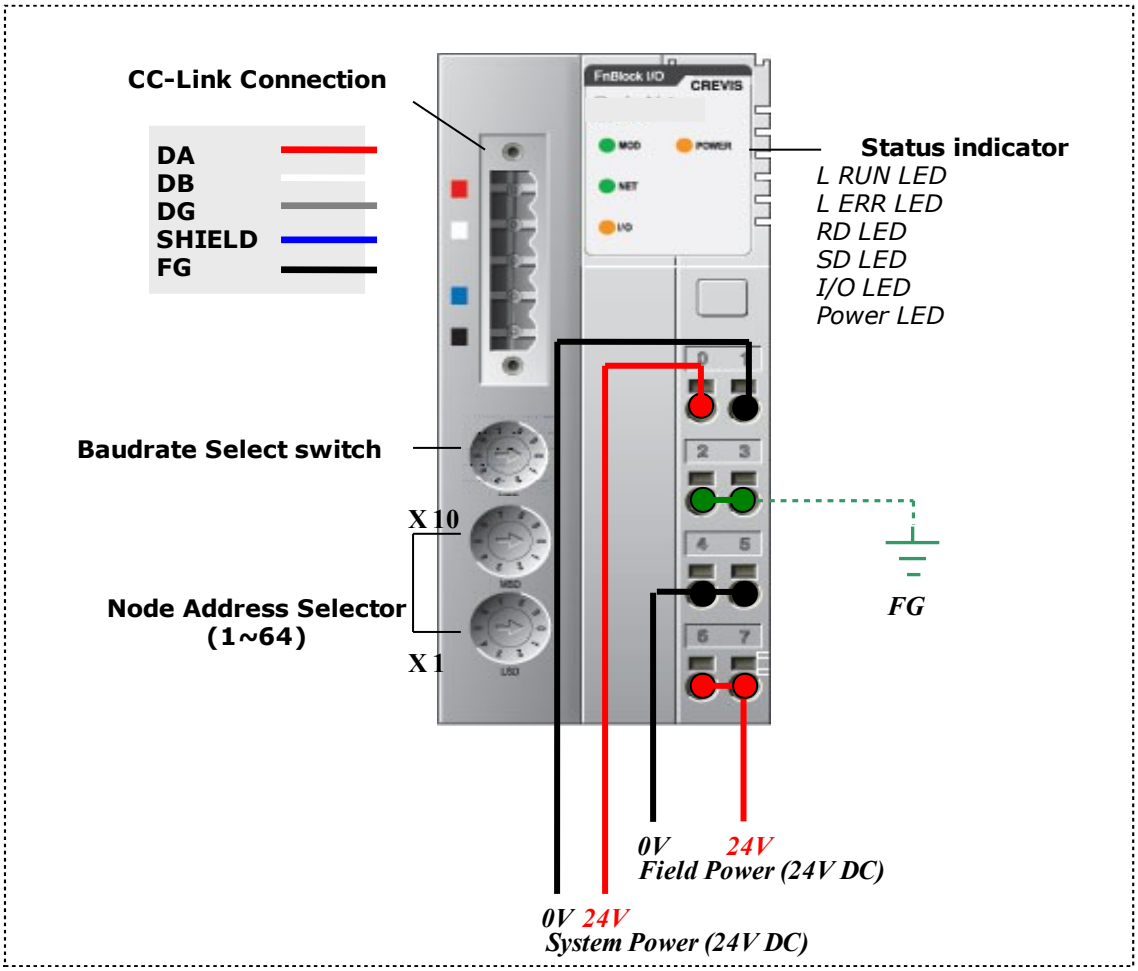
FnIO S-Series

The modular fieldbus system for automation

1.General Specification

Items	NA-9131 CC-Link Network Module
Communication Interface Specifications	
Protocol Version	Version 1.11
Station type	Remote Device Station
Max number of occupied stations	4 Stations
Number of Expansion I/O slots	Max. 32 slots
Max I/O Data Size	System area : 16 point RX / RY: 112 point(4 Stations accupied) RWr/RWw : 16 channels(4 Stations accupied)
Indicators	1 green RUN Status Indicator 1 red L Error Status Indicator 1 green SD Status Indicator 1 green RD Status Indicator 1 green/red Expansion Module Status indicator 1 green Field Power Status indicator
Communication Rate	156/625/2500/5000/10000 kbps
Module Location	Starter module - left side of FnIO system
Connection cable	CC-Link dedicated cable
Terminal resistor	110ohm,1/2W(Between DA and DB) ..both trunk line ends
Slave station number	1~64
General Specification	
System Power	Supply voltage : 24Vdc nominal Voltage range : 11~28.8Vdc, Protection : Output Current Limit (Min. 1.5A) Reverse Polarity protection
Power dissipation	60mA typical @24Vdc
Isolation	System power : Non- isolation System to Logic : Isolation
Field Power	Supply voltage : 24Vdc nominal Voltage range : 11~28.8Vdc
Current in jumper contacts	DC 10A maximum

2.HW Description



■ Baudrate and Station number setting

Baud rate	Rotary switch value	
	Fixed addressing	Auto addressing
156Kbps	0	5
625 Kbps	1	6
2.5 Mbps	2	7
5 Mpbs	3	8
10 Mbps	4	9

- Fixed addressing : 4 Stations are occupied
- Auto addressing : 1~4 Stations are occupied depends on the number of expansion IO.

■ I/O LED Status

IO LED	Description	FW Revision
Green	FnBus Run	
Green blinking	FnBus Stop	Since Rev1.001
Red blinking	FnBus init Error	
Red	FnBus IO update error	
Green/Red blinking(interval 0.2s,5 times)	EEPROM initial phase	Since Rev1.001

3.Process image

3-1.Remote input area

Link Input Address	No. of occupied station	Size	Signal name
RXm0~RXmF	1 station: 16 points (n = 1)	2 Bytes	Discrete input
RX(m+1)0~RX(m+1)F	2 stations: 48 points (n = 3)	6 Bytes	
RX(m+2)0~RX(m+2)F			
RX(m+3)0~RX(m+3)F	3 stations: 80 points (n = 5)	10 Bytes	
RX(m+4)0~RX(m+4)F			
RX(m+5)0~RX(m+5)F	4 stations: 112 points (n = 7)	14 Bytes	
RX(m+6)0~RX(m+6)F			
RX(m+n)0~RX(m+n)F		2 Bytes	System area

- m : Register number that was introduled by head station number
- n : Final register number for occupied number

3-2.Remote output area

Link Input Address	No. of occupied station	Size	Signal name
RYm0~RYmF	1 station: 16 points (n = 1)	2 Bytes	Discrete output
RY(m+1)0~RY(m+1)F	2 stations: 48 points (n = 3)	6 Bytes	
RY(m+2)0~RY(m+2)F			
RY(m+3)0~RY(m+3)F	3 stations: 80 points (n = 5)	10 Bytes	
RY(m+4)0~RY(m+4)F			
RY(m+5)0~RY(m+5)F	4 stations: 112 points (n = 7)	14 Bytes	
RY(m+6)0~RY(m+6)F			
RY(m+n)0~RY(m+n)F		2 Bytes	System area

- m : Register number that was introduled by head station number
- n : Final register number for occupied number

3-3.RWr/RWw Area

Address	Staions	Size	Signal name	Address	Stations	Size	Signal name
RWrm0	1 Station	4Words	Analog Input	RWwm0	1 Station	4Words	Analog Output
…				…			
RWrm3				RWwm3			
RWrm4	2Stations	8Words		RWwm4	2 Stations	8Words	
…				…			
RWrm7				RWwm7			
RWrm8	3 Stations	12Words		RWwm8	3 Stations	12Words	
…				…			
RWrmB				RWwmB			
RWrmC	4 Stations	16Words		RWwmC	4 Stations	16Words	
…				…			
...				...			
...				…			
RWrmF				RWwmF			

3-4.System Area

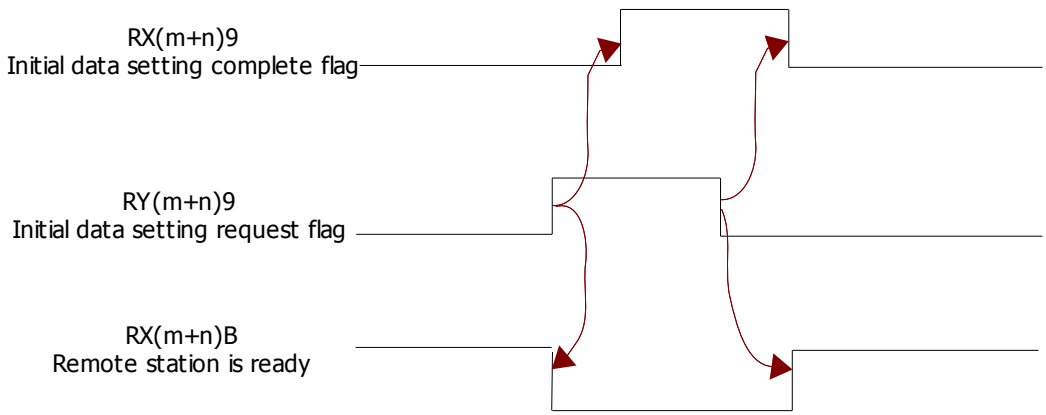
Link Input	Signal name	Link Output	Signal name
RX(m+n)0	Reaction on network error	RY(m+n)0	Reaction on network error
RX(m+n)1	Reaction on network error	RY(m+n)1	Reaction on network error
RX(m+n)2	Reserved	RY(m+n)2	Reserved
RX(m+n)3	Reserved	RY(m+n)3	Reserved
RX(m+n)4	Reserved	RY(m+n)4	Reserved
RX(m+n)5	Reserved	RY(m+n)5	Reserved
RX(m+n)6	Msg service ready	RY(m+n)6	Msg service start request
RX(m+n)7	Msg response completed	RY(m+n)7	Msg request
RX(m+n)8	Reserved	RY(m+n)8	Reserved
RX(m+n)9	Initial data setting completion	RY(m+n)9	Initial data settings request
RX(m+n)A	Error status flag	RY(m+n)A	Reserved
RX(m+n)B	Remote station is ready	RY(m+n)B	Reserved
RX(m+n)C	Reserved	RY(m+n)C	Reserved
RX(m+n)D	Reserved	RY(m+n)D	Reserved
RX(m+n)E	Reserved	RY(m+n)E	Reserved
RX(m+n)F	Reserved	RY(m+n)F	Reserved

■ **Reaction on network error**

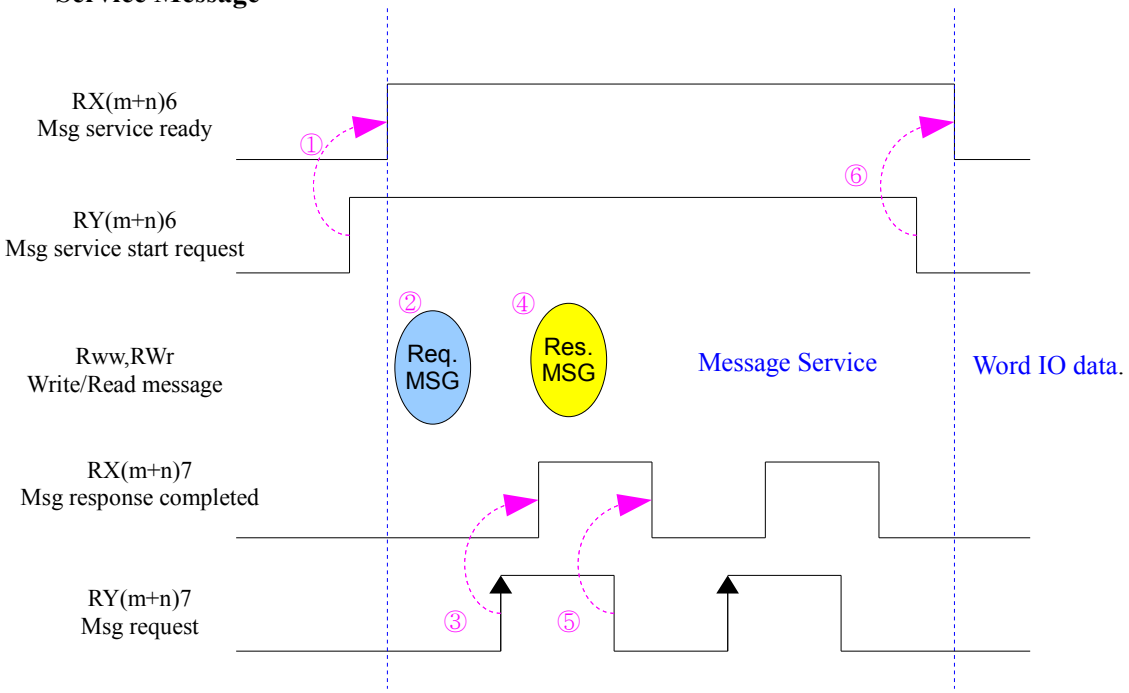
RY(m+n)1	RY(m+n)0	Description
0	0	Hold last value
0	1	Clear outputs to zero.**(Factory default setting)**
1	0	Stop the FnBus.(Each expansion module reacts according to it's parameter)
1	1	Not used(internally switched to 10)

■ **RX(m+n)9/RY(m+n)9: Initial data setting completion/request flag**

This is used if there is a request from the user sequence for initial setting of the NA-9131 station. Note: Linked with RX(m+n)B (Slave station ready).



■ Service Message



① Set RY(m+n)6. Then Service message will be mapped on the RW area.
② If RX(m+n)6 is 1, write service message request on RWw area.
③ Set RY(m+n)7 bit.
④ If RX(m+n)7 bit is 1, read service message response from RWr area.
⑤ Reset RY(m+n)7 bit.
⑥ Reset RY(m+n)6 bit. Then IO data will be mapped on the RW area.

■ Service message request

	High Byte	Low Byte	
RWw[0]	Slot Number	Serivce code – Read Parameter : 2 – Write Parameter : 3 – Read Memory : 4 – Write Memory : 5	1 Station
RWw[1]	Offset		
RWw[2]	User Data 0	User Data Length	
RWw[3]	User Data 2	User Data 1	
RWw[4]	User Data 4	User Data 3	2 Stations
RWw[5]	User Data 6	User Data 5	
RWw[6]	User Data 8	User Data 7	
RWw[7]	User Data 10	User Data 9	
RWw[8]	User Data 12	User Data 11	3 Stations
RWw[9]	User Data 14	User Data 13	
RWw[10]	User Data 16	User Data 15	
RWw[11]	User Data 18	User Data 17	
RWw[12]	User Data 20	User Data 19	4 Stations
RWw[13]	User Data 22	User Data 21	
RWw[14]	User Data 24	User Data 23	
RWw[15]	User Data 26	User Data 25	

■ **Service message response**

	High Byte	Low Byte	
RWr[0]	Slot Number	Serivce code – Read Parameter : 2 – Write Parameter : 3 – Read Memory : 4 – Write Memory : 5	1 Station
RWr[1]	Offset		
RWr[2]	User Data 0	User Data Length	
RWr[3]	User Data 2	User Data 1	
RWr[4]	User Data 4	User Data 3	2 Stations
RWr[5]	User Data 6	User Data 5	
RWr[6]	User Data 8	User Data 7	
RWr[7]	User Data 10	User Data 9	
RWr[8]	User Data 12	User Data 11	3 Stations
RWr[9]	User Data 14	User Data 13	
RWr[10]	User Data 16	User Data 15	
RWr[11]	User Data 18	User Data 17	
RWr[12]	User Data 20	User Data 19	4 Stations
RWr[13]	User Data 22	User Data 21	
RWr[14]	User Data 24	User Data 23	
RWr[15]	User Data 26	User Data 25	