
FnIO G-Series:

GL-9031

GL-9031 (CC-Link Network Adapter Light)

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History

Rev	Pages	Remarks	Date	Editor
1.00			Nov 30, 2020	Junho, Park
1.01	7	Changed LED Indicator	June 01, 2023	Junho, Park
1.02	5,7,8,9	Changed Node Id Setting Range / Added ERR LED Discription	June 08, 2023	Junho, Park
1.03	4	General Specification Edited Document Number Added	Jun. 19, 2023	Seonghyeon, Park
1.04	5	Added Max. number of stations per master station	Apr. 17, 2024	Junho, Park
1.05	8	Indicator states and flash rates deleted.	Apr. 29, 2024	Seonghyeon, Park

1. Environment Specification

Environmental specification	
Operating Temperature	-40°C ~ 60°C : 1A full load is allowed.
UL Temperature	-20°C~60°C
Storage Temperature	-40°C~85°C
Relative Humidity	5% ~ 90% non-condensing
Mounting	DIN rail
General specification	
Shock Operating	IEC 60068-2-27
Vibration Resistance	IEC 60068-2-6, 4g
Industrial Emissions	EN 61000-6-4/A11 : 2011
Industrial Immunity	EN 61000-6-2 : 2019
Installation Position	Vertical and horizontal installation is available.
Product Certifications	CE, UL

2. GL-9031 (CC-Link Network Adapter, Light)

2.1. GL-9031 Specification

Items	Specification
Communication Specification	
Adapter Type	Slave node (CC-Link Version 1)
Max. Expantsion Module	12slots
I/O Data size	System area : 16 points RX/RX : 112 points(4staion occupied) RWw/RWw : 16 points(4station occupied)
Maximum number of stations per master station	Max. 42 stations
The number of device station	1 ~ 64
Baud Rate	156/625/2500/5000/10000Kbps
Interface Connector	5 Pin open connector
Indicator	4 LED 1 Green/Red, Module Status (MOD) 1 Green, Communication Status (RUN) 1 Green, Error Status (ERR) 1 Green/Red Expansion Module Status (IOS)
Module Location	Starter module left side of G-bus system
Station class	Remote Device station
General specification	
UL System Power	Supply voltage : 24Vdc nominal, Class 2
System Power	Supply voltage : 24Vdc nominal Supply voltage range : 15~28.8Vdc Reverse polarity protection
Power Dissipation	35mA typical @ 24Vdc
Current for I/O Module	1.0A @ 5Vdc
Isolation	System power to internal logic : Non-isolation System power I/O driver : Isolation
UL Field Power	Supply voltage : 24Vdc nominal, Class 2
Field Power	Supply voltage : 24Vdc nominal(Max. 28.8Vdc) * Field Power Range is different depending on IO Module series. Refer to IO Module's Specification.
Max. Current Field Power Contact	DC 8A Max
Wiring	I/O Cable Max. 2.0mm ² (AWG 14)
Weight	71g
Module Size	22mm x 109mm x 70mm
Environment Condition	Refer to '1. Environment Specification'

2.3. GL-9031 LED Indicator

2.3.1. LED Indicator



LED No.	LED Function / Description	LED Color
MOD	Module Status	Green/Red
RUN	Communication status	Green
ERR	Error Status	Green
IOS	Extension Module Status	Green/Red

2.3.2. MOD (Module Status LED)

Status	LED is	To indicate
Not Powered	OFF	Not power is supplied to the unit.
Normal, Operational	Green	The unit is operating in normal condition.
Device in Standby	RED	The EEPROM parameter is not initialized yet. Serial Number is zero value (0x00000000)

2.3.3. RUN (Communication State LED)

Status	LED is	To indicate
Init / No Communication	Red	No Communication / Communication Disconnection
Communication	Green	Normal Communication
Communication Error	OFF	Communication Error / Token passing

2.3.4. ERR (Error State LED)

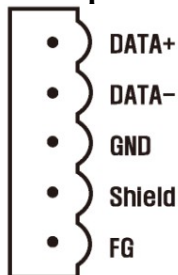
Status	LED is	To indicate
No Error	OFF	No Error
Invalid Configuration	Red	Exceeded number range of device station

2.3.5. IOS (Extension Module Status LED)

Status	LED is	To indicate
Not Powered	OFF	Device has no expansion module or may not be powered.
No Expansion Module	Flashing Red	Adapter has no expansion module
No Expansion Module	Green	Exchanging I/O data.
Internal Bus Connection, Run Exchanging I/O	Red	One or more expansion module occurred in fault state. <ul style="list-style-type: none"> - Detected invalid expansion module ID. - Too many expansion module - Initialization failure - Overflowed Input/Output Size - Communication failure. - Changed expansion module configuration. - Mismatch vendor code between adapter and expansion module.
Expansion Configuration Failed		

2.4. GL-9031 Electrical Interface

2.4.1. 5 Pin open connector



RJ-45	Signal Name	Description
1	DATA+	Transceiver Data High
2	DATA-	Transceiver Data Low
3	GND	Signal Common
4	Shield	Shield
5	FG	Frame Ground Internally shorted with shield

2.4.2. Dip Switch



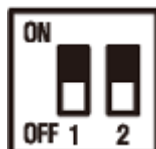
DIP Pole#	Description	
1	Node Address Setting	Node address set-up is Dip switch. Max node Address is 64.(*)
2		
3		
4		
5		
6		
7		
8	Baud rate #1	156Kbps : 8 OFF, 9 OFF, 10 OFF 625Kbps : 8 ON, 9 OFF, 10 OFF
9	Baud rate #2	2.5Mbps : 8 OFF, 9 ON, 10 OFF 5Mbps : 8 ON, 9 ON, 10 OFF
10	Baud rate #3	10Mbps : 8 OFF, 9 OFF, 10 ON Default Baud rate 156Kbps

* Node address setting example

Item Description	DIP Switch Pole #									
	#1(1)	#2(2)	#3(4)	#4(8)	#5(10)	#6(20)	#7(40)	#8	#9	#10
Ex) ID = 0	OFF	OFF	OFF	OFF	OFF	OFF	OFF			
Ex) ID = 1	ON	OFF	OFF	OFF	OFF	OFF	OFF			
Ex) ID = 10	OFF	OFF	OFF	OFF	ON	OFF	OFF			
Ex) ID = 42	OFF	ON	OFF	OFF	OFF	OFF	ON			
Ex) ID = 64	OFF	OFF	ON	OFF	OFF	ON	ON			



DIP Pole#	Description	
1	Fixed Station	OFF : Auto ON : 4 station Occupied
2	Mode	Mode switch is ON, the IO size will be increased 2 bytes more respectively
3	STOP Action	OFF : Master value dependent ON : Output Clear
4	Reserved	



DIP Pole#	Description	
1	Terminating Resistor	1 ON, 2 ON : Terminating Resistor Set
2		Other : Terminating Resistor Non-Set

3. Process image

3.1. Remote input area

No. of occupied station	Size	Signal name
1 station : 16points	2 bytes	Discrete input
2 station : 48points	6 bytes	
3 station : 80points	10 bytes	
4 station : 112points	14 bytes	
System area	2 bytes	System

* When Mode switch is ON, the IO size will be increased 2bytes more respectively

3.2. Remote output area

No. of occupied station	Size	Signal name
1 station : 16points	2 bytes	Discrete Output
2 station : 48points	6 bytes	
3 station : 80points	10 bytes	
4 station : 112points	14 bytes	
System area	2 bytes	System

* When Mode switch is ON, the IO size will be increased 2bytes more respectively

3.3. RWr/RWw area

Address	Configuration	size	Signal	Address	Configuration	size	Signal
Rwr0 ~ Rwr3	1 Stations	4Words	Analog in / Spical module	Rww0 ~ Rww3	1 Stations	4Words	Analog out / Spical module
Rwr4 ~ Rwr7	2 Stations	8Words		Rww4 ~ Rww7	2 Stations	8Words	
Rwr8 ~ Rwr11	3 Stations	12Words		Rww8 ~ Rww11	3 Stations	12Words	
Rwr12 ~ Rwr27	4 Stations	16Words		Rww12 ~ Rww27	4 Stations	16Words	

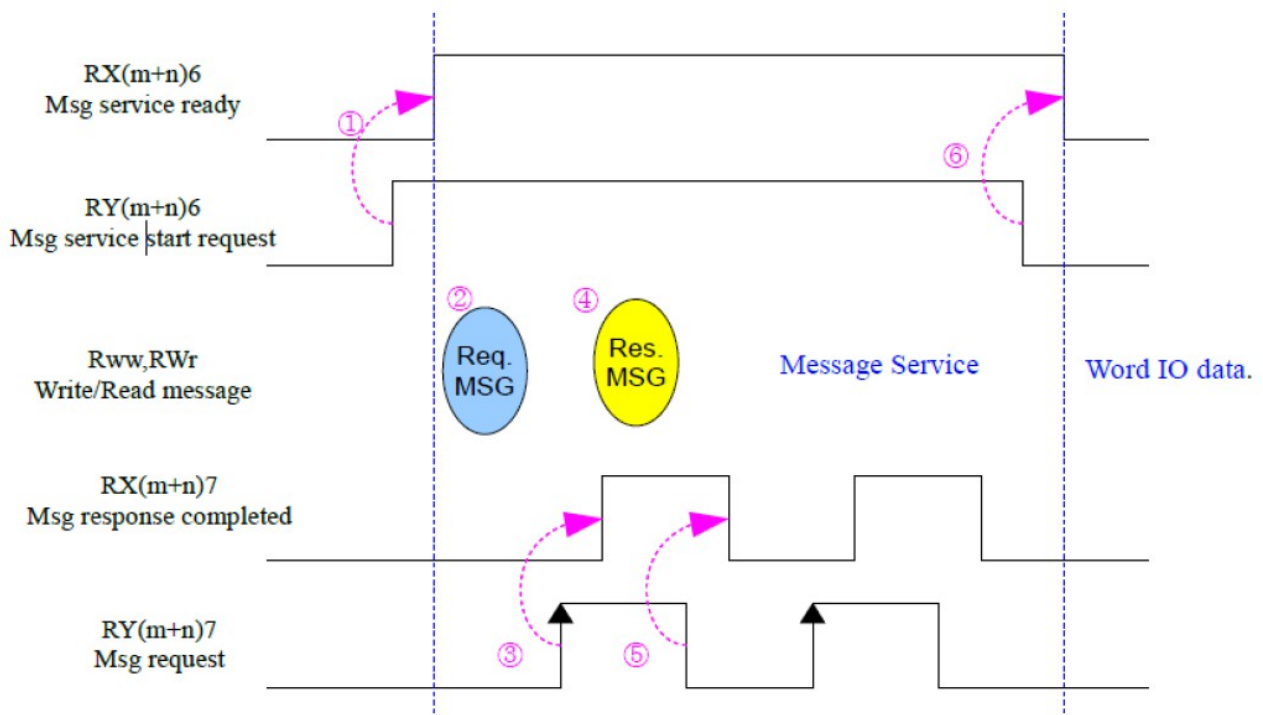
3.4. System area

Input	Description	Output	Description
RX0	Reaction on network error	RY0	Reaction on network error
RX1	Reaction on network error	RY1	Reaction on network error
RX2	Reserved	RY2	Reserved
RX3	Reserved	RY3	Reserved
RX4	Reserved	RY4	Reserved
RX5	Reserved	RY5	Reserved
RX6	Msg service ready	RY6	Msg service start request
RX7	Msg response completed	RY7	Msg request
RX8	Reserved	RY8	Reserved
RX9	Reserved	RY9	Reserved
RXA	Error status flag	RYA	Reserved
RXB	Remote station ready	RYB	Reserved
RXC	Reserved	RYC	Reserved
RXD	Reserved	RYD	Reserved
RXE	Reserved	RYE	Reserved
RXF	Reserved	RYF	Reserved

3.4.1. Reaction on network error

RY1	RY0	Description
0	0	Hold Last value
0	1	Clear output to zero
1	0	Stop Bus
1	1	Not used(internally switched to 10)

3.4.2. Service Message



3.4.3. Service Message request

Address	High byte	Low byte	station
RWw[0]	Slot number	Service code - Read Parameter : 2 - Write Parameter : 3	1
RWw[1]	offset		
RWw[2]	User data length		
RWw[3]	User data 1	User data 0	
RWw[4]	User data 3	User data 2	2
RWw[5]	User data 5	User data 4	
RWw[6]	User data 7	User data 6	
RWw[7]	User data 9	User data 8	
RWw[8]	User data 11	User data 10	3
RWw[9]	User data 13	User data 12	
RWw[10]	User data 15	User data 14	
RWw[11]	User data 17	User data 16	
RWw[12]	User data 19	User data 18	4
RWw[13]	User data 21	User data 20	
RWw[14]	User data 23	User data 22	
RWw[15]	User data 25	User data 24	

3.4.4. Service Message response

Address	High byte	Low byte	station
RWr[0]	Slot number	Service code - Read Parameter : 2 - Write Parameter : 3	1
RWr[1]	offset		
RWr[2]	User data length		
RWr[3]	User data 1	User data 0	
RWr[4]	User data 3	User data 2	2
RWr[5]	User data 5	User data 4	
RWr[6]	User data 7	User data 6	
RWr[7]	User data 9	User data 8	
RWr[8]	User data 11	User data 10	3
RWr[9]	User data 13	User data 12	
RWr[10]	User data 15	User data 14	
RWr[11]	User data 17	User data 16	
RWr[12]	User data 19	User data 18	4
RWr[13]	User data 21	User data 20	
RWr[14]	User data 23	User data 22	
RWr[15]	User data 25	User data 24	