

# **FnIO G – Series :**

## ***GT-1C68***

***GT-1C68 (Total 16 Points, Combination DI/DO,  
8PTs Sink Input + 8 PTs Source Output  
with Delay Time Measurement, 24Vdc)***

Table of Contents

[Table of Contents.....2](#)

[History.....3](#)

[1.ENVIRONMENT SPECIFICATION.....4](#)

[2.GT-1C68 \(Combination DI/DO, Sink Input/Source Output with Delay Time Measurement, 24Vdc\).....5](#)

[2.1.GT-1C68 Specification .....5](#)

[2.2.GT-1C68 Wiring Diagram.....6](#)

[2.3.GT-1C68 LED Indicator.....7](#)

[2.3.1.LED Indicator.....7](#)

[2.3.2.Channel Status LED.....7](#)

[2.4.Mapping data into the image table.....8](#)

[2.5.Parameter Data.....9](#)

[2.6.Trouble shooting.....9](#)

History

Rev	Pages	Remarks	Date	Editor
1.00			2025/05/07	Joonho, Park

# Specification

## 1. ENVIRONMENT SPECIFICATION

Environmental specification	
Operation Temperature	-40°C ~60°C
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	Based on IEC 60068-2-6, 4g
Industrial Emissions	EN61000-6-4/All : 2011
Industrial Immunity	EN 61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UKCA, UL

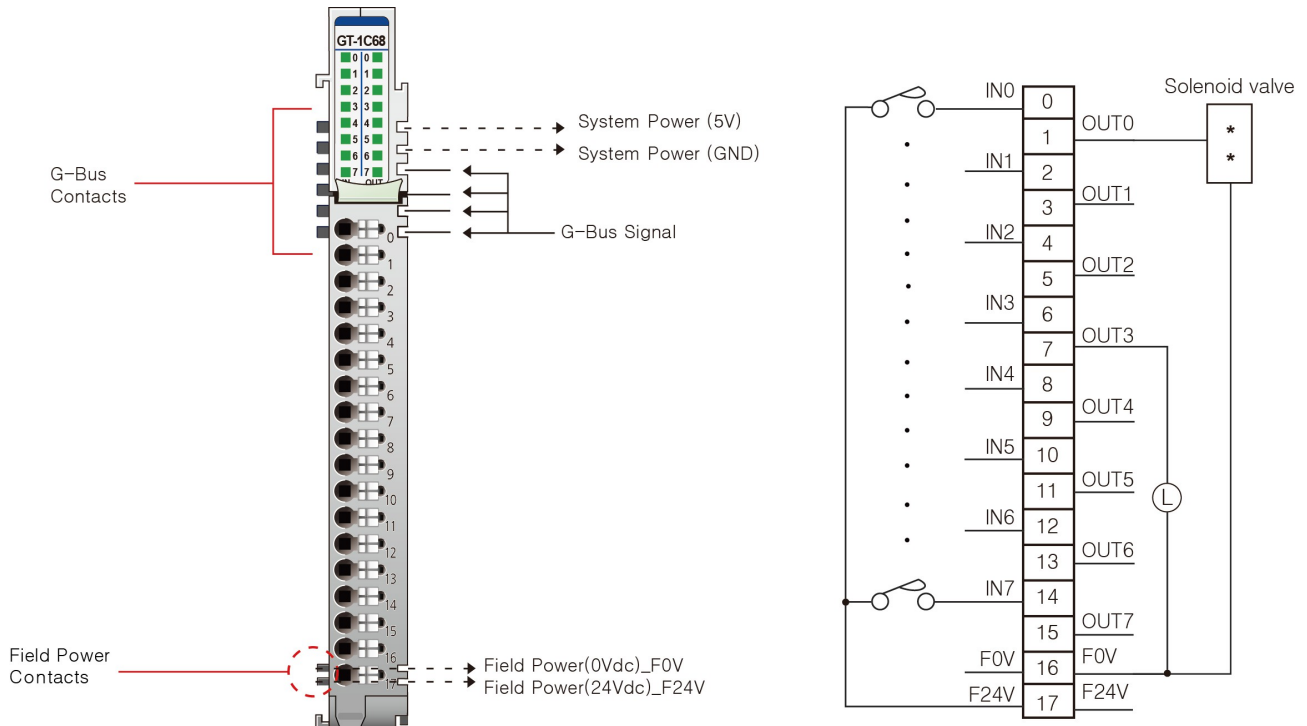
# Specification

## 2. GT-1C68 (Combination DI/DO, Sink Input/Source Output with Delay Time Measurement, 24Vdc)

### 2.1. GT-1C68 Specification

Items	Specification
<b>Input Specification</b>	
Input per module	8 points sink type
Indicators	8 green input status
On-state voltage	24V dc nominal 15 ~ 30Vdc @ 60°C
On-state current	2.25mA @ 24Vdc 3mA @ 30Vdc
Off-state voltage	8Vdc @ 25°C
Input signal delay	OFF to ON : 0.3ms Max ON to OFF : 0.3ms Max
Input filter	Adjustable, up to 10ms
Nominal input impedance	10.2K ohm typical
<b>Output Specification</b>	
Output per module	8 points source type
Indicators	8 Green output status
Output voltage range	24Vdc nominal 15Vdc ~ 30Vdc @ 60°C
On-state voltage drop	0.4Vdc @ 25°C, -40°C 0.6Vdc @ 60°C
On-state min. current	Min. 1mA
Off-state leakage current	Max. 10uA
Output signal delay	OFF to ON : 0.1ms maximum ON to OFF : 0.35ms maximum
Output current rating	Max. 0.5A per channel / Max. 4A per unit
Protection	Over current limit : 2.2A@ 25°C per each channels Thermal shutdown : 175°C Short circuit protection
<b>General specification</b>	
Power dissipation	Max. 55mA @ 5Vdc
Isolation	I/O to Logic : photocoupler isolation
UL field power	Supply voltage : 24Vdc nominal, Class 2
Field power	Supply voltage : 24Vdc nominal Voltage range : 15 ~ 30Vdc Power dissipation : 40mA @ 24Vdc
Single wiring	I/O Cable Max. 0.823mm <sup>2</sup> (AWG 18)
Weight	63g
Module size	12mm x 109mm x 70mm
<b>Environment condition</b>	<b>Refer to 'Environment Specification'</b>

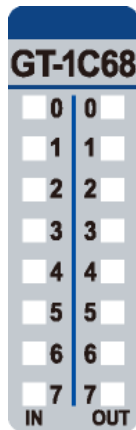
## 2.2. GT-1C68 Wiring Diagram



Pin No.	Signal Description
0	Input Channel 0
1	Output Channel 0
2	Input Channel 1
3	Output Channel 1
4	Input Channel 2
5	Output Channel 2
6	Input Channel 3
7	Output Channel 3
8	Input Channel 4
9	Output Channel 4
10	Input Channel 5
11	Output Channel 5
12	Input Channel 6
13	Output Channel 6
14	Input Channel 7
15	Output Channel 7
16	Common (Field Power 0V)
17	Common (Field Power 24V)

## 2.3. GT-1C68 LED Indicator

### 2.3.1. LED Indicator



LED No.	LED Function / Description	LED Color
0(Left side)	INPUT Channel 0	Green
1	INPUT Channel 1	Green
2	INPUT Channel 2	Green
3	INPUT Channel 3	Green
4	INPUT Channel 4	Green
5	INPUT Channel 5	Green
6	INPUT Channel 6	Green
7	INPUT Channel 7	Green
0(Right side)	OUTPUT Channel 0	Green
1	OUTPUT Channel 1	Green
2	OUTPUT Channel 2	Green
3	OUTPUT Channel 3	Green
4	OUTPUT Channel 4	Green
5	OUTPUT Channel 5	Green
6	OUTPUT Channel 6	Green
7	OUTPUT Channel 7	Green

### 2.3.2. Channel Status LED

- LED No. 0~7 (Left side)

Status	LED	To indicate
No Signal	Off	No Input Signal
On Signal	Green	Input Signal detected

- LED No. 0~7 (Right side)

Status	LED	To indicate
No Signal	Off	No Output Signal
On Signal	Green	Output Signal detected

# Specification

## 2.4. Mapping data into the image table

### ● Input Image Value

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0	D7	D6	D5	D4	D3	D2	D1	D0
Byte1	OnWng7	OnWng6	OnWng5	OnWng4	OnWng3	OnWng2	OnWng1	OnWng0
Byte2	OffWng7	OffWng6	OffWng5	OffWng4	OffWng3	OffWng2	OffWng1	OffWng0
Byte3	OnAlm7	OnAlm6	OnAlm5	OnAlm4	OnAlm3	OnAlm2	OnAlm1	OnAlm0
Byte4	OffAlm7	OffAlm6	OffAlm5	OffAlm4	OffAlm3	OffAlm2	OffAlm1	OffAlm0
Byte5	OnDelayTime Value Ch 0 (1 count is 1msec, Max 255msec)							
Byte6	OnDelayTime Value Ch 1 (1 count is 1msec, Max 255msec)							
Byte7	OnDelayTime Value Ch 2 (1 count is 1msec, Max 255msec)							
Byte8	OnDelayTime Value Ch 3 (1 count is 1msec, Max 255msec)							
Byte9	OnDelayTime Value Ch 4 (1 count is 1msec, Max 255msec)							
Byte10	OnDelayTime Value Ch 5 (1 count is 1msec, Max 255msec)							
Byte11	OnDelayTime Value Ch 6 (1 count is 1msec, Max 255msec)							
Byte12	OffDelayTime Value Ch 7 (1 count is 1msec, Max 255msec)							
Byte13	OffDelayTime Value Ch 0 (1 count is 1msec, Max 255msec)							
Byte14	OffDelayTime Value Ch 1 (1 count is 1msec, Max 255msec)							
Byte15	OffDelayTime Value Ch 2 (1 count is 1msec, Max 255msec)							
Byte16	OffDelayTime Value Ch 3 (1 count is 1msec, Max 255msec)							
Byte17	OffDelayTime Value Ch 4 (1 count is 1msec, Max 255msec)							
Byte18	OffDelayTime Value Ch 5 (1 count is 1msec, Max 255msec)							
Byte19	OffDelayTime Value Ch 6 (1 count is 1msec, Max 255msec)							
Byte20	OffDelayTime Value Ch 7 (1 count is 1msec, Max 255msec)							
Byte21	-	-	-	-	-	-	-	ClearPrev

\* OnWng0~7 : Diagnostic error status for OnDelayTime Warning Channel 0~7

- 0 : Normal Operation
- 1 : OnDelayTime Warning occurred.

\* OffWng0~7 : Diagnostic error status for OffDelayTime Warning Channel 0~7

- 0 : Normal Operation
- 1 : OffDelayTime Warning occurred.

\* OnAlm0~7 : Diagnostic error status for OnDelayTime Alarm Channel 0~7

- 0 : Normal Operation
- 1 : OnDelayTime Alarm occurred.

\* OffAlm0~7 : Diagnostic error status for OffDelayTime Alarm Channel 0~7

- 0 : Normal Operation
- 1 : OffDelayTime Alarm occurred.

\* ClearPrev : Clear command previous value.

### ● Output Image Value

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0	D7	D6	D5	D4	D3	D2	D1	D0
Byte1	-	-	-	-	-	-	-	Clear

\* Clear: Clear command. If a value different from the "Clear Prev" value of input data byte 21 is commanded, the data values of input data bytes 1 to 20 are cleared.



# Specification

## 2.5. Parameter Data

- Valid Parameter length: 8 Bytes
- Parameter Data

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0	Fault Action (ch0~ch7) 0: Fault value, 1:Hold last state							
Byte1	Fault value (ch0~ch7) 0:Off, 1:On							
Byte2	Input Filter value : 0 ~ 10 (unit : ms)							
Byte3	Reserved							
Byte4	OnDelayWarningTime Value (Default : 0, 1 count is 1msec, Max. 100msec)							
Byte5	OnDelayAlarmTime Value (Default : 0, 1 count is 1msec, Max. 125msec)							
Byte6	OffDelayWarningTime Value (Default : 0, 1 count is 1msec, Max. 100msec)							
Byte7	OffDelayAlarmTime Value (Default : 0, 1 count is 1msec, Max. 125msec)							

\* After changing parameter data values, the product must be rebooted for the changes to take effect.

## 2.6. Trouble shooting

Issue	Solution
When the delay time is not measured.	<b>Set Byte4~Byte7 of the Parameter data</b> If any of the values in bytes 4 to 7 of the parameter data are set to "0", the delay time will not be measured. Set the parameter values required for delay time measurement in bytes 4 to 7 of the parameter data.
If the data values of Byte1 and Byte3 of the input data are both 0xFF regardless of the delay time measurement results.	<b>On Delay WarningTime Value &lt; On delay AlarmTime Value</b> Among the parameter data, "OnDelayWarningTime Value" is set to a value greater than "OnDelayAlarmTime Value". "OnDelayWarningTime Value" should always be set to a value less than "OnDelayAlarmTime Value".
If the data values of Byte2 and Byte4 of the input data are both 0xFF regardless of the delay time measurement results.	<b>Off Delay WarningTime Value &lt; Off delay AlarmTime Value</b> Among the parameter data, "OffDelayWarningTime Value" is set to a value greater than "OffDelayAlarmTime Value". "OffDelayWarningTime Value" should always be set to a value less than "OffDelayAlarmTime Value".
When both On/Off warning and alarm of the same channel are set to "HI(1)"	An error has occurred with the sensor, cable, or product connected to that channel. The sensor, cable, or product should be inspected and replaced.