
FnIO G – Series :

GT-1258

***GT-1258 (8 Points Digital Input, 24Vdc Proximity Sensor Type,
Detecting Open, Short, On/Off States)***

Specification

Table of Contents

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

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

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

[2.GT-1258\(8 Points Digital Input, 24Vdc Proximity Sensor Type, Detecting Open, Short, On/Off States\).....5](#)

[2.1.GT-1258 Specification.....5](#)

[2.2.GT-1258 Wiring Diagram.....6](#)

[2.3.GT-1258 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.....10](#)

History

Rev	Pages	Remarks	Date	Editor
1.00			2022/01/22	Byungsoon, Ha
1.01	5	Modify GT-1258 Specification	2022/12/28	Sejin, Lim
1.02	5, 7, 9	Page5. Modify GT-1658 Specification description Page7. Channel Status LED description Page9. Mapping data description	2023/01/03	Sejin, Lim
1.03	4,6	Edit Certification / Change Diagram	2023/08/08	Suna, Hwang
1.04	7,9	Edit LED, Mapping data Explanation	2025/08/21	Soyeong, 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 : 2019
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL, UKCA

Specification

2. GT-1258(8 Points Digital Input, 24Vdc Proximity Sensor Type, Detecting Open, Short, On/Off States)

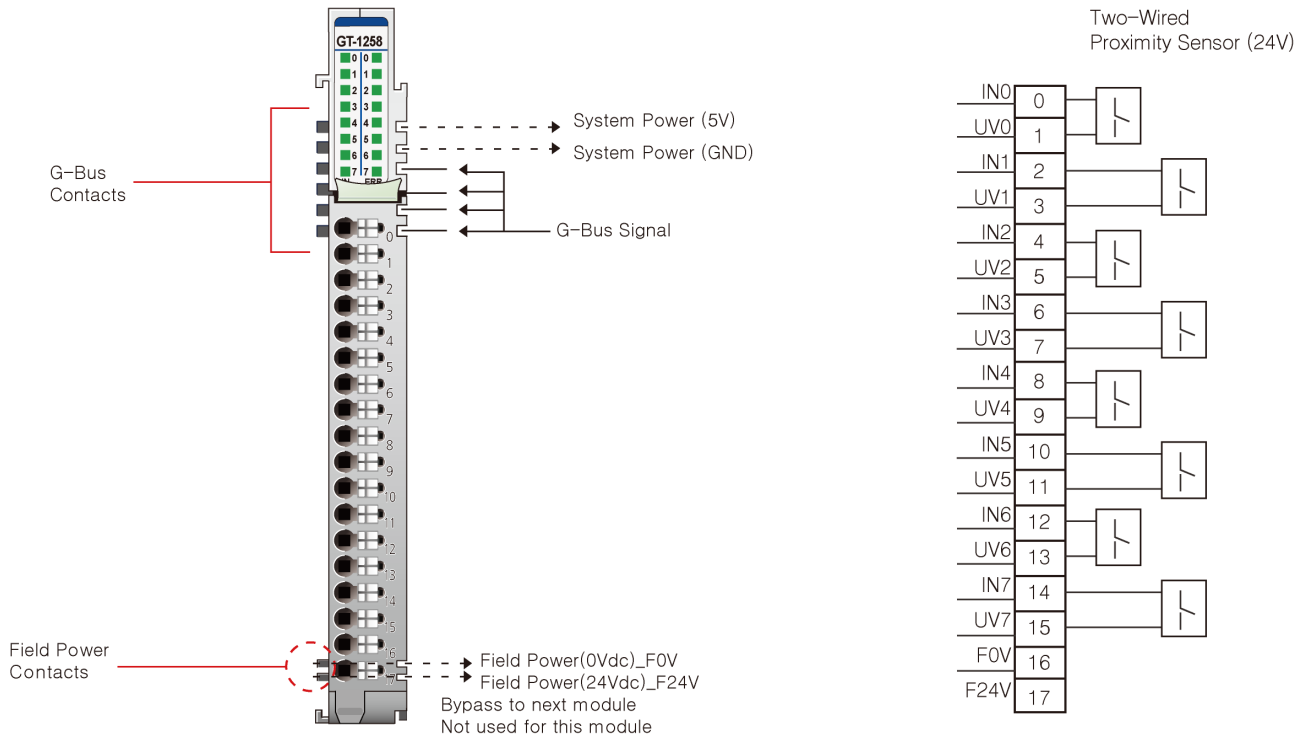
2.1. GT-1258 Specification

Items	Specification
Input specification	
Inputs per module	8 points
Indicators	8 input status(green) / 8 error status(green)
Sensor supply voltage *	24Vdc Nominal (Min.23Vdc~Max 25Vdc) **Maintain recommended voltage range to detect short-circuit
Sensor connection	2x (2-wire)
Signal current (0)	$I \leq 1.5\text{mA}$
Signal current (1)	$I \geq 4.8\text{mA}$
Diagnostics	Short-circuit, Open-circuit
Open-circuit detection(Line break)	$I \leq 0.1\text{mA}$
Short-circuit detection	$I \geq 7.2\text{mA}$
Short-circuit current	$I \leq 8.2\text{mA}$
Max. switching frequency	1kHz
Input impedance	3.1K Ω Typ.
Output impedance(F24V)	0.1K Ω Typ.(Uv1~8)
General specification	
Power dissipation	Max. 50mA @ 5Vdc
Isolation	I/O to Logic : photocoupler isolation
UL field power	Supply voltage : 24Vdc nominal, Class 2
Field power **	Supply voltage : 24Vdc nominal *Input Voltage range : 23 ~ 25Vdc Power dissipation: 15mA + Load @ 24Vdc Output impedance : 100 Ω (Uv1~8)
Single wiring	I/O Cable Max. 0.823mm ² (AWG 18)
Weight	64g
Module size	12mm x 109mm x 70mm
Environment condition	Refer to '1. Environment specification'

* Don't use sensor with off-state leakage current of '0mA'. It will be recognized as an open circuit.

** Don't use sensor with Internal impedance with internal resistance less than 400 Ω .

2.2. GT-1258 Wiring Diagram

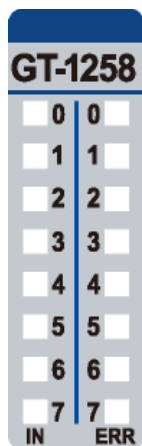


Pin No.	Signal Description
0	Input Channel 0
1	Sensor supply channel 0 (Uv0 / 24V)
2	Input Channel 1
3	Sensor supply channel 1 (Uv1 / 24V)
4	Input Channel 2
5	Sensor supply channel 2 (Uv2 / 24V)
6	Input Channel 3
7	Sensor supply channel 3 (Uv3 / 24V)
8	Input Channel 4
9	Sensor supply channel 4 (Uv4 / 24V)
10	Input Channel 5
11	Sensor supply channel 5 (Uv5 / 24V)
12	Input Channel 6
13	Sensor supply channel 6 (Uv6 / 24V)
14	Input Channel 7
15	Sensor supply channel 7 (Uv7 / 24V)
16	Common (Field Power 0V)
17	Common (Field Power 24V)

Specification

2.3. GT-1258 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)	ERROR Channel 0	Green
1	ERROR Channel 1	Green
2	ERROR Channel 2	Green
3	ERROR Channel 3	Green
4	ERROR Channel 4	Green
5	ERROR Channel 5	Green
6	ERROR Channel 6	Green
7	ERROR Channel 7	Green

2.3.2. Channel Status LED

* NO Type (Parameter Data (NC_ENA) :0)

Input LED	Error LED	Explanation
OFF	OFF	Usual operation: "0" Sensor Signal ($I \leq 1.5\text{mA}$) = Sensor on channel in non-conductive state
ON	OFF	Usual operation: "1" Sensor Signal ($I \geq 4.8\text{mA}$) = Sensor on channel in conducting state
OFF	ON	Error detection: open- circuit on channel ($I < 0.1\text{mA typ.}$)
ON	ON	Error detection: short-circuit on channel ($I > 7.1\text{mA typ.}$)

* NC Type (Parameter Data (NC_ENA) :1)

Input LED	Error LED	Explanation
OFF	OFF	Usual operation: "1" Sensor Signal ($I \geq 4.8\text{mA}$) = Sensor on channel in conducting state
ON	OFF	Usual operation: "0" Sensor Signal ($I \leq 1.5\text{mA}$) = Sensor on channel in non-conductive state
OFF	ON	Error detection: short-circuit on channel ($I > 7.1\text{mA typ.}$)
ON	ON	Error detection: open- circuit on channel ($I < 0.1\text{mA typ.}$)

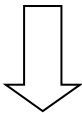
2.4. Mapping data into the image table

<Input Byte 0 (Signal Status)>

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
IN 7	IN 6	IN 5	IN 4	IN 3	IN 2	IN 1	IN 0
IN 0		Digital Input 0					
IN 1		Digital Input 1					
IN 2		Digital Input 2					
IN 3		Digital Input 3					
IN 4		Digital Input 4					
IN 5		Digital Input 5					
IN 6		Digital Input 6					
IN 7		Digital Input 7					

<Input Byte 1 (Error Status)>

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
DIA 7	DIA 6	DIA 5	DIA 4	DIA 3	DIA 2	DIA 1	DIA 0
DIA 0		Diagnostic 0					
DIA 1		Diagnostic 1					
DIA 2		Diagnostic 2					
DIA 3		Diagnostic 3					
DIA 4		Diagnostic 4					
DIA 5		Diagnostic 5					
DIA 6		Diagnostic 6					
DIA 7		Diagnostic 7					



● Input Image Value

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0	IN 7	IN 6	IN 5	IN 4	IN 3	IN 2	IN 1	IN 0
Byte1	DIA 7	DIA 6	DIA 5	DIA 4	DIA 3	DIA 2	DIA 1	DIA 0

Specification

When sensor type NO (“Normally Open”, make contact) is enabled, the following logic applies:

Bit Combination with a Connected Sensor Functioning as a Make Contact

Input Byte 0 (0 ... 7)	Input Byte 1 (0 ... 7)	Explanation
Signal Status	Error	
0	0	Usual operation: “0” Sensor Signal ($I \leq 1.5\text{mA}$) = Sensor on channel in non-conductive state
1	0	Usual operation: “1” Sensor Signal ($I \geq 4.8\text{mA}$) = Sensor on channel in conducting state
0	1	Error detection: open- circuit on channel ($I < 0.1\text{mA typ.}$)
1	1	Error detection: short-circuit on channel ($I > 7.1\text{mA typ.}$)

When sensor type NC (“Normally Closed”, break contact) is enabled, the following logic applies:

Bit Combinations with a Connected Sensor Functioning as a Break Contact

Input Byte 0 (0 ... 7)	Input Byte 1 (0 ... 7)	Explanation
Signal Status	Error	
0	0	Usual operation: “1” Sensor Signal ($I \geq 4.8\text{mA}$) = Sensor on channel in conducting state
1	0	Usual operation: “0” Sensor Signal ($I \leq 1.5\text{mA}$) = Sensor on channel in non-conductive state
0	1	Error detection: short-circuit on channel ($I > 7.1\text{mA typ.}$)
1	1	Error detection: open- circuit on channel ($I < 0.1\text{mA typ.}$)

2.5. Parameter Data

- **Valid Parameter length: 2 Bytes**
- **Parameter Data**

Parameter Byte 0 (Enable Sensor Type NC) : Parameter Byte 0 is used to determine whether a make contact or a break contact should be processed as sensor.

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
NC_ENA 7	NC_ENA 6	NC_ENA 5	NC_ENA 4	NC_ENA 3	NC_ENA 2	NC_ENA 1	NC_ENA 0
NC_ENA x (x = 0 ... 7)		Sensor Type IN x (x = 0 ... 7)					
		0 : NO(Default)					
		1 : NC					

ENA : “enabled”

NC : Break Contact(“Normally Closed”)

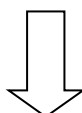
NO : Make Contact(“Normally Open”)

Parameter Byte 1 (Diagnostic Status) : Parameter Byte 1 is used to determine channel by channel whether diagnostics should be evaluated.

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
DIA_DIS 7	DIA_DIS 6	DIA_DIS 5	DIA_DIS 4	DIA_DIS 3	DIA_DIS 2	DIA_DIS 1	DIA_DIS 0
DIA_DIS x (x = 0 ... 7)		Diagnostic Blocking IN x (x = 0 ... 7)					
		0 : Diagnostics Switched ON(Default)					
		1 : Diagnostics Switched OFF					

DIA: “Diagnostics”

DIS: “Disabled”



Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0	NC_ENA 7	NC_ENA 6	NC_ENA 5	NC_ENA 4	NC_ENA 3	NC_ENA 2	NC_ENA 1	NC_ENA 0
Byte1	DIA_DIS 7	DIA_DIS 6	DIA_DIS 5	DIA_DIS 4	DIA_DIS 3	DIA_DIS 2	DIA_DIS 1	DIA_DIS 0