

FnIO G – Series :

GT-3C78

***GT-3C78 (8 Channels, Voltage Input, 0~10Vdc, 0~5Vdc, 1~5Vdc,
8 Channels, Voltage Output, 0~10Vdc, 12bit)***

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History

Rev	Pages	Remarks	Date	Editor
1.00			2021/02/01	Soyeong, Park
1.01	1,4,6	Add Voltage Range to description, Data range /Edit Certification,Signal Description /Change Diagram	2023/07/28	Soyeong, Park
1.02	5	Edit System, Field Power Dissipation	2025/05/30	Suna, Hwang

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

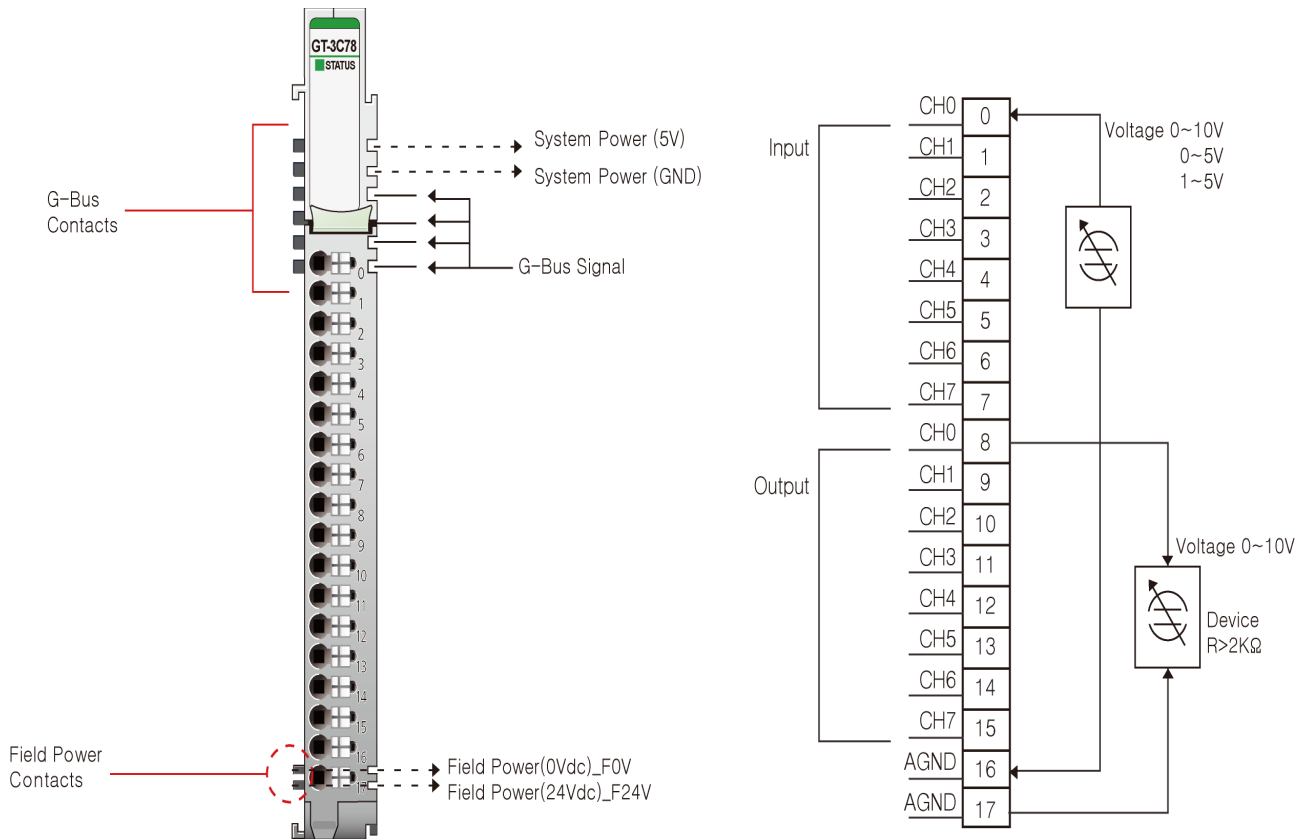
Specification

2. GT-3C78 (8 Channels, Voltage Input, 0~10Vdc, 0~5Vdc, 1~5Vdc, Voltage Output, 0~10Vdc, 12bit)

2.1. GT-3C78 Specification

Items	Specification
Input Specification	
Inputs Per Module	8 Channels single ended, non-isolated between channel
Resolution in Ranges	12 bits : 2.44mV/Bit(0~10V) 12 bits : 1.22mV/Bit(0~5V) 12 bits : 0.977mV/Bit(1~5V)
Input Range	0~10Vdc, 0~5Vdc, 1~5Vdc
Data Format	16bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ±0.3% Full Scale @ -40°C, 60°C
Input Impedance	469.5kΩ
Output Specification	
Output Per Module	8 Channels single ended, non-isolated between channel
Resolution in range	12bit : 2.44mV/bit
Output Voltage Range	0 ~ 10Vdc
Data Format	16bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ±0.3% Full Scale @ -40°C, 60°C
Load resistance	Min 2KΩ
Signal Common Specification	
Diagnostic	Diagnostic Field Power Off : LED Blinking
Conversion Time	1.5msec / All channel
Calibration	Not Required
Common Type	2 Common, Field Power 0V is Common(AGND)
General Specification	
Power Dissipation	Max. 35mA @ 5Vdc
Isolation	I/O to Logic : Photocoupler Isolation Field power : Non-Isolation
UL Field Power	Supply Voltage : 24Vdc nominal, Class 2
Field Power	Supply Voltage : 24Vdc nominal Supply Voltage : 18~30Vdc Power Dissipation : Max. 45mA@24Vdc
Wiring	I/O Cable Max. 0.823mm ² (AWG 18)
Weight	64g
Module Size	12mm x 109mm x 70mm
Environment Condition	Refer to 'Environment Specification'

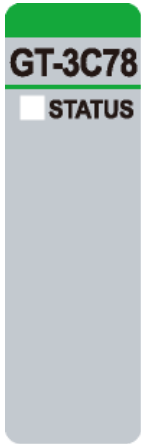
2.2. GT-3C78 Wiring Diagram



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

2.3. GT-3C78 LED Indicator

2.3.1. LED Indicator



LED No.	LED Function / Description	LED Color
0	Status LED	Green

2.3.2. Channel Status LED

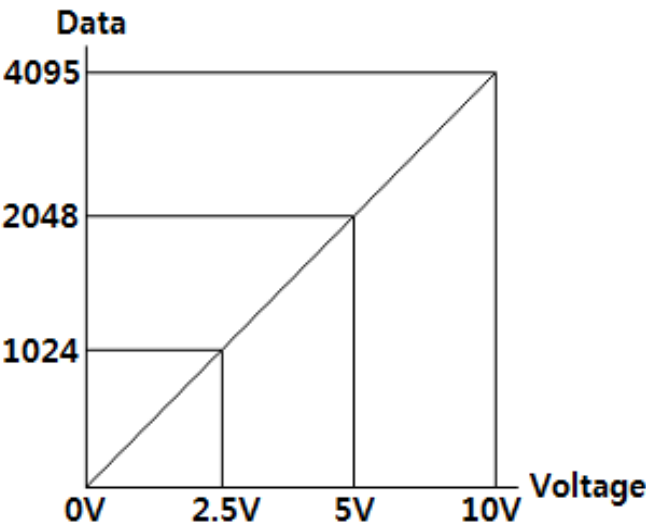
Status	LED	To indicate
G-Bus Status	Off	Disconnection
	Green	Connection
Field Power Error	Status Channel Repeat the Green and Off	Field power is unconnected.

2.4. Data Value / Voltage

2.4.1. Operating Range

Voltage Range : 0~10V

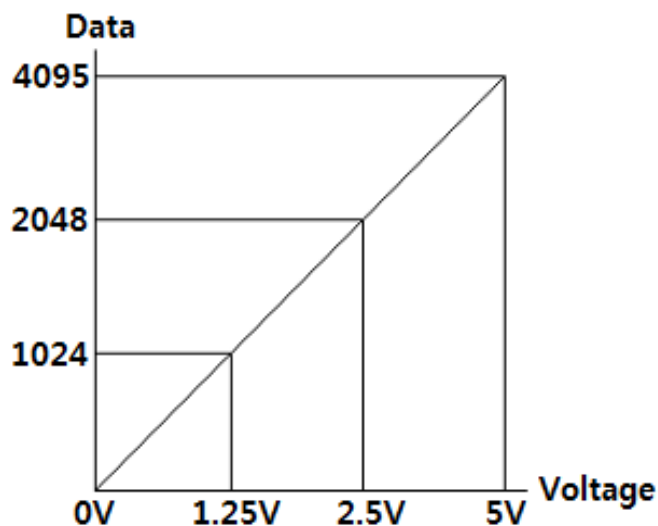
Voltage	0.0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



Specification

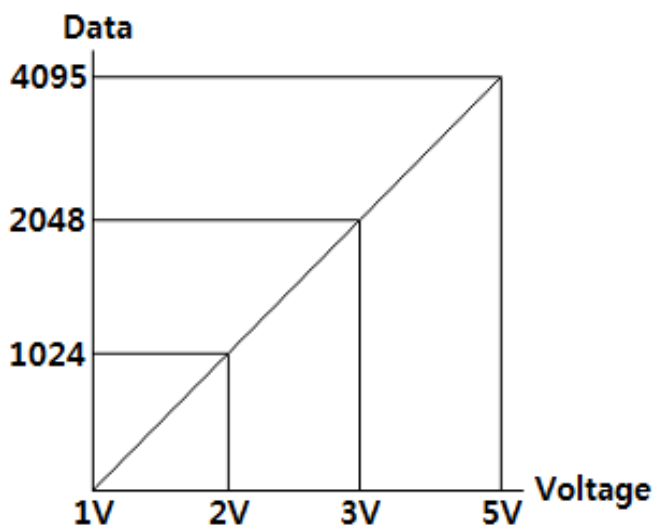
Voltage Range : 0~5V

Voltage	0.0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



Voltage Range : 1~5V

Voltage	1.0V	2.0V	3.0V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



2.4.2. Underrun / Overrun Range

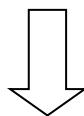
Voltage	Voltage Range : 0~10V		Voltage Range : 0~5V		Voltage Range : 1~5V	
	<0.0V	>10.0V	<0.0V	>6.0V	<1.0V	>6.0V
Data(Hex)	-	-	-	H7FFF	H8000	H7FFF

Specification

2.5. Mapping Data into the Image Table

● Input Module Data

	Analog Input Ch0
	Analog Input Ch1
	Analog Input Ch2
	Analog Input Ch3
	Analog Input Ch4
	Analog Input Ch5
	Analog Input Ch6
	Analog Input Ch7



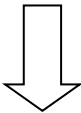
● Input Image Value

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0	Analog Input Ch0 Low byte							
Byte1	Analog Input Ch0 High byte							
Byte2	Analog Input Ch1 Low byte							
Byte3	Analog Input Ch1 High byte							
Byte4	Analog Input Ch2 Low byte							
Byte5	Analog Input Ch2 High byte							
Byte6	Analog Input Ch3 Low byte							
Byte7	Analog Input Ch3 High byte							
Byte8	Analog Input Ch4 Low byte							
Byte9	Analog Input Ch4 High byte							
Byte10	Analog Input Ch5 Low byte							
Byte11	Analog Input Ch5 High byte							
Byte12	Analog Input Ch6 Low byte							
Byte13	Analog Input Ch6 High byte							
Byte14	Analog Input Ch7 Low byte							
Byte15	Analog Input Ch7 High byte							

Specification

● Output Image Value

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0	Analog Output Ch0 Low byte							
Byte1	Analog Output Ch0 High byte							
Byte2	Analog Output Ch1 Low byte							
Byte3	Analog Output Ch1 High byte							
Byte4	Analog Output Ch2 Low byte							
Byte5	Analog Output Ch2 High byte							
Byte6	Analog Output Ch3 Low byte							
Byte7	Analog Output Ch3 High byte							
Byte8	Analog Output Ch4 Low byte							
Byte9	Analog Output Ch4 High byte							
Byte10	Analog Output Ch5 Low byte							
Byte11	Analog Output Ch5 High byte							
Byte12	Analog Output Ch6 Low byte							
Byte13	Analog Output Ch6 High byte							
Byte14	Analog Output Ch7 Low byte							
Byte15	Analog Output Ch7 High byte							



● Output Module Data

Analog Output Ch0
Analog Output Ch1
Analog Output Ch2
Analog Output Ch3
Analog Output Ch4
Analog Output Ch5
Analog Output Ch6
Analog Output Ch7

Specification

2.6. Parameter Data

- Valid Parameter length : 8Bytes
- Parameter Data

	Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
AI	Byte0	Voltage Range for Channel 3		Voltage Range for Channel 2		Voltage Range for Channel 1		Voltage Range for Channel 0	
	Byte1	Voltage Range for Channel 7		Voltage Range for Channel 6		Voltage Range for Channel 5		Voltage Range for Channel 4	
		00 : 0~10Vdc 01 : 0~5Vdc 10 : 1~5Vdc							
	Byte2	Filter Time (H00 : Default Filter(20) / H01 : Fastest ~ / H3E : Slowest)							
	Byte3	Reserved							
AO	Byte4	Fault Action for Channel 3		Fault Action for Channel 2		Fault Action for Channel 1		Fault Action for Channel 0	
	Byte5	Fault Action for Channel 7		Fault Action for Channel 6		Fault Action for Channel 5		Fault Action for Channel 4	
		00 : Fault Value 01 : Hold Last State 10 : Low Limit 11 : High Limit							
	Byte6	Fault Value Low Byte							
	Byte7	Fault Value High Byte							