
FnIO G – Series :

GT-3978

GT-3978 (8 Channels 18pt RTB, Differential Current Input)

0~30mA / -30~30mA, 16bit

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History

Rev	Pages	Remarks	Date	Editor
1.00			2025/04/17	Soyeong, Park

Specification

1. Environment Specification

Environmental Specification	
Operation Temperature	-40°C ~60°C
UL Temperature	-20°C ~60°C
Non-Operating 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, UKCA, UL

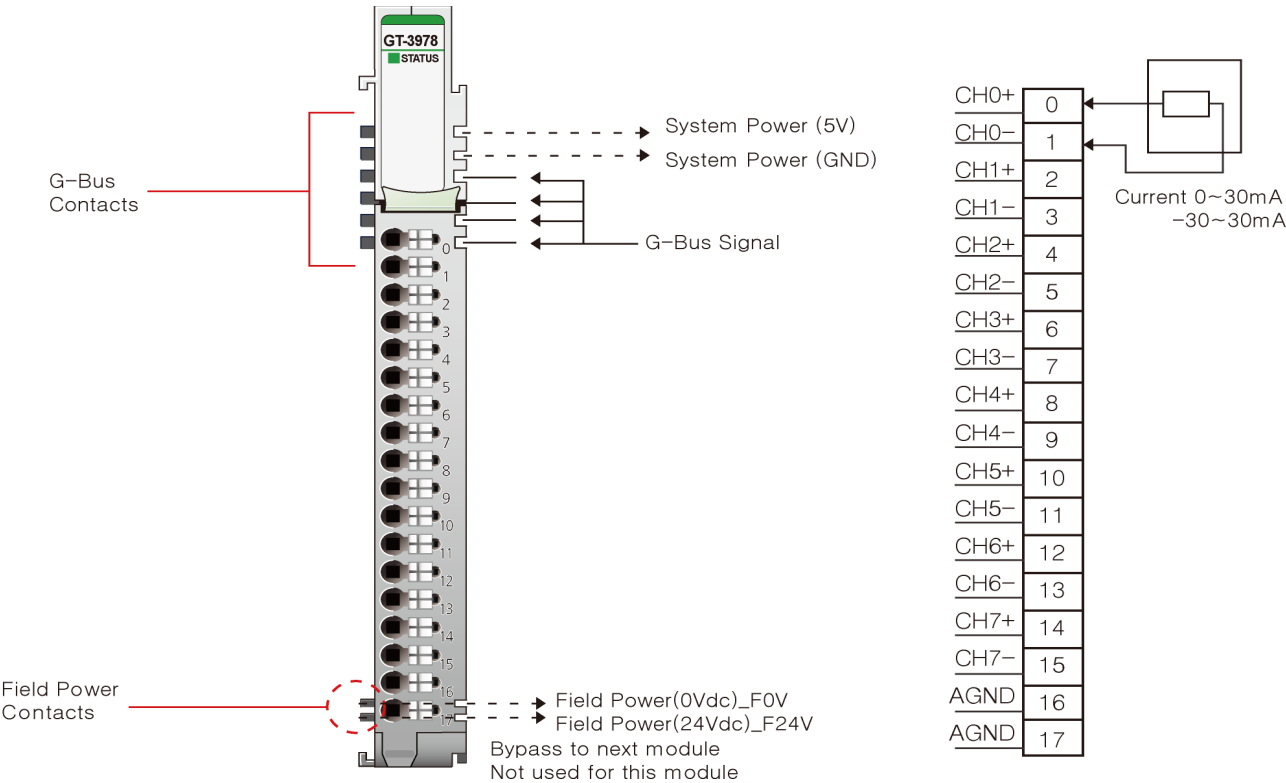
Specification

2. GT-3978 (8 Channels, Differential Current Input, 0~30mA / -30~30mA, 16bit)

2.1. GT-3978 Specification

Items	Specification
Input Specification	
Inputs Per Module	8 Channels Differential, non-isolated between channel
Indicators	1 Green G-Bus status
Resolution in Ranges	16 bit (Include Sign) 15 bits : 0.92uA/bit(0~30mA) 15 bits : 1.83uA/bit(-30~30mA)
Input Range	0~30mA, -30~30mA
Data Format	16bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ±0.3% Full Scale @ -40°C, 60°C
Input Impedance	80Ω
Conversion Time	2.2msec / All channel
Calibration	Not Required
General Specification	
Power Dissipation	Max. 250mA @ 5Vdc
Isolation	I/O to Logic : Photocoupler Isolation Field power : Not Connected
UL Field Power	Supply Voltage : 24Vdc nominal, Class 2
Field Power	Not used, Field power bypass to next expansion module
Single Wiring	I/O Cable Max. 0.823mm ² (AWG 18)
Weight	63g
Module Size	12mm x 109mm x 70mm
Environment Condition	Refer to 'Environment Specification'

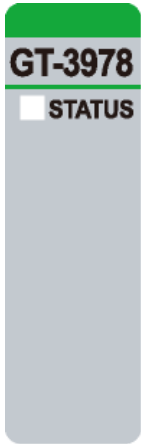
2.2. GT-3978 Wiring Diagram



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

2.3. GT-3978 LED Indicator

2.3.1. LED Indicator



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

2.3.2. Channel Status LED

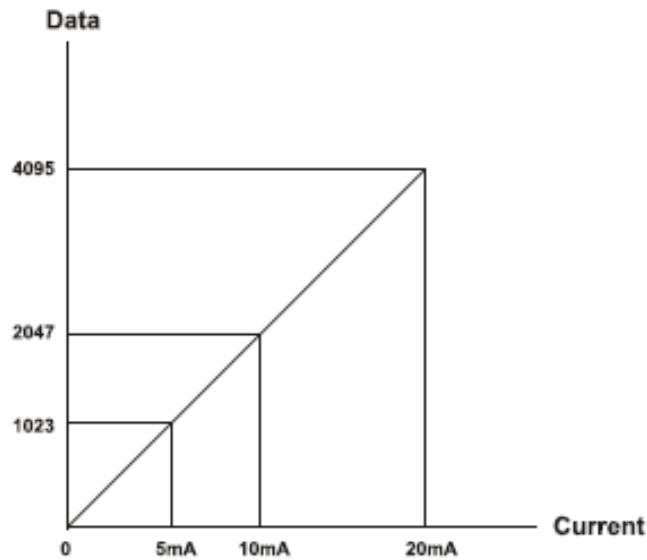
Status	LED	To indicate
G-Bus Status	Off Green	Disconnection Connection

2.4. Data Value / Current

2.4.1. Operating Range

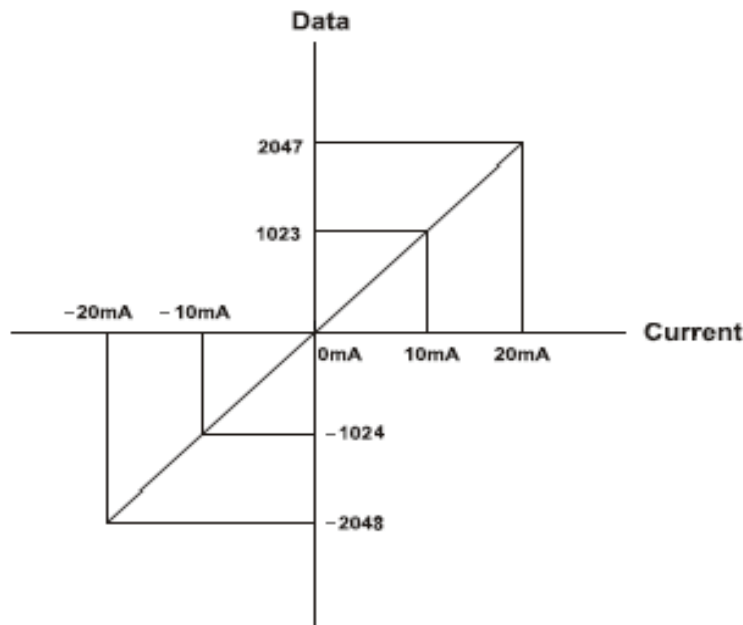
Current Range : 0~30mA

Current	0.0mA	10.0mA	15.0mA	30.0mA
Data(Hex)	H0000	H2AAA	H3FFF	H7FFF



Current Range : -30~30mA

Current	-30.0mA	-15.0mA	0mA	15.0mA	30.mA
Data(Hex)	HC000	HE000	H0000	H1FFF	H3FFF



Specification

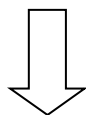
2.4.2. Underrun / Overrun Range

Current	Current Range : 0~30mA		Current Range : -30~30mA	
	<0.0mA	>31.0mA	<-31.0mA	>31.0mA
Data(Hex)	-	H7FFF	H8000	H7FFF

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							

2.6. Parameter Data

- Valid Parameter length: 10 Bytes
- Parameter Data

Bit No	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte0	Ch#0 Command(H00 : 0~30mA, H01 : -30~30mA)							
Byte1	Ch#1 Command(H00 : 0~30mA, H01 : -30~30mA)							
Byte2	Ch#2 Command(H00 : 0~30mA, H01 : -30~30mA)							
Byte3	Ch#3 Command(H00 : 0~30mA, H01 : -30~30mA)							
Byte4	Ch#4 Command(H00 : 0~30mA, H01 : -30~30mA)							
Byte5	Ch#5 Command(H00 : 0~30mA, H01 : -30~30mA)							
Byte6	Ch#6 Command(H00 : 0~30mA, H01 : -30~30mA)							
Byte7	Ch#7 Command(H00 : 0~30mA, H01 : -30~30mA)							
Byte8	Filter Time(H00 : Default Filter(20), H01 : Fastest ~ H3E : Slowest, HFF : Filter OFF)							
Byte9	Reserved							