
FnIO G – Series :

GT-311F

GT-311F (16 Channels, Current Input, 0~20mA / 4~20mA, 12bit)

Table of Contents

Table of Contents.....	2
History.....	3
1.ENVIRONMENT SPECIFICATION.....	4
2.GT-311F(16 Channels Current Input, 0~20mA / 4~20mA, 12bit).....	5
2.1.GT-311F Specification.....	5
2.2.GT-311F Wiring Diagram.....	6
2.3.GT-311F LED Indicator.....	7
2.3.1.LED Indicator.....	7
2.3.2.Channel Status LED.....	7
2.4.Data value / Current.....	8
2.4.1.Operating Range.....	8
2.4.2.Underrun / Overrun Range.....	8
2.5.Mapping data into the image table.....	9
2.6.Parameter Data.....	10

History

Rev	Pages	Remarks	Date	Editor
1.00			2016/07/26	Geonwoong, Lee
1.01		Edit conversion time	2020/04/17	Seokhyun, Jun
1.02	4,6,8	Change Diagram / Edit Certification /Add Data range	2023/07/31	Soyeong, Park
1.03	5	Edit System, Field Power Dissipation	2025/05/30	Suna, Hwang
1.04	5	Add Wiring-Module Connector	2026/03/10	Soyeong, Park

Specification

1. ENVIRONMENT SPECIFICATION

Environmental specification	
Operating 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	EN 61000-6-4/A11 : 2011
Industrial Immunity	EN 61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL

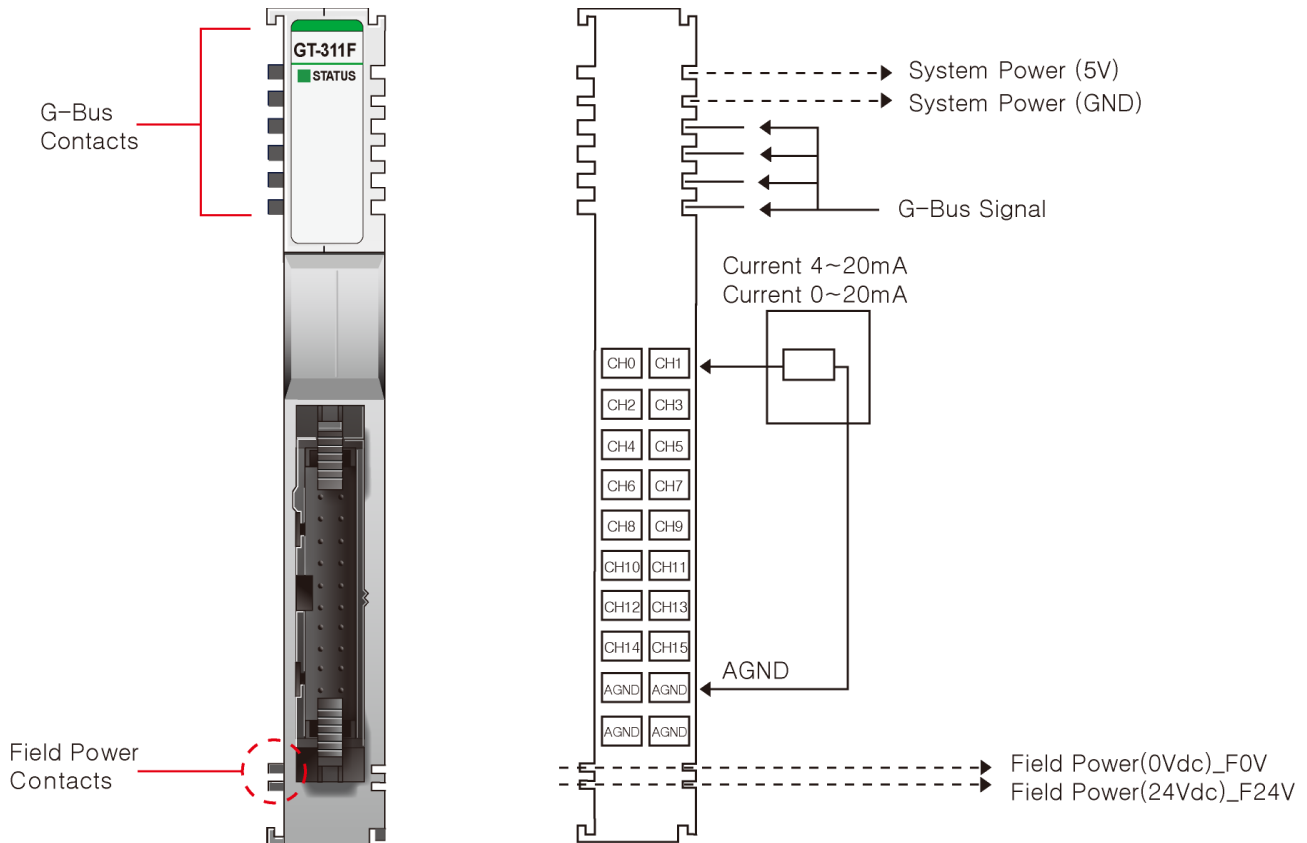
Specification

2. GT-311F(16 Channels Current Input, 0~20mA / 4~20mA, 12bit)

2.1. GT-311F Specification

Items	Specification
Input Specification	
Inputs per module	16 Channels single ended, non-isolated between channel
Indicators	1 Green G-Bus status
Resolution in Ranges	12 bits : 4.88uA/Bit(0~20mA) 12 bits : 3.91uA/Bit(4~20mA)
Input Range	0~20mA, 4~20mA
Data Format	16bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ±0.3% Full Scale @ -40°C, 60°C
Input Impedance	121.5Ω
Diagnostic	Diagnostic Field Power Off : LED Blinking
Conversion Time	1.2msec / All channel
Field calibration	Not Required
Common Type	4 Common, Field Power 0V is Common(AGND)
General Specification	
Power Dissipation	Max. 35mA @ 5Vdc
Isolation	I/O to Logic : Isolation Field power : Non-Isolation
UL Field Power	Supply voltage : 24Vdc nominal, Class2
Field Power	Supply Voltage : 24Vdc nominal Voltage Range : 18 ~ 26.4Vdc Power Dissipation : Max. 40mA@24Vdc
Wiring	According to the connector specification Hirose Connector : HIF3BA-20PA-2.54DSA Omron Connector : XG4A-2031
Weight	58g
Module Size	12mm x 99mm x 70mm
Environment Condition	Refer to 'Environment Specification'

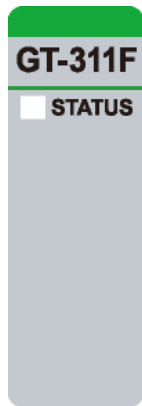
2.2. GT-311F Wiring Diagram



Pin No.	Signal Description	Signal Description	Pin No.
1	Input Channel 0	Input Channel 1	2
3	Input Channel 2	Input Channel 3	4
5	Input Channel 4	Input Channel 5	6
7	Input Channel 6	Input Channel 7	8
9	Input Channel 8	Input Channel 9	10
11	Input Channel 10	Input Channel 11	12
13	Input Channel 12	Input Channel 13	14
15	Input Channel 14	Input Channel 15	16
17	Input Channel Common(AGND)	Input Channel Common(AGND)	18
19	Input Channel Common(AGND)	Input Channel Common(AGND)	20

2.3. GT-311F LED Indicator

2.3.1. LED Indicator



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

2.3.2. Channel Status LED

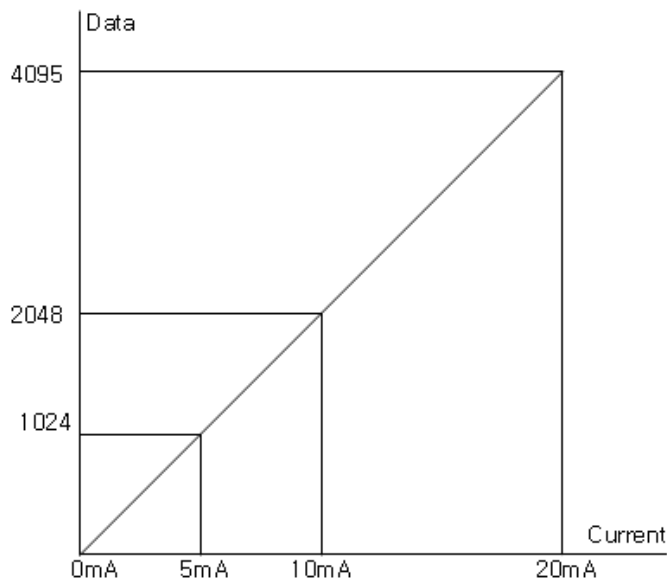
Status	LED	To indicate
G-Bus Status	Off Green	Disconnection Connection
Field Power Error	Status Channel Repeat the Green and Off	Field Power is unconnected

2.4. Data value / Current

2.4.1. Operating Range

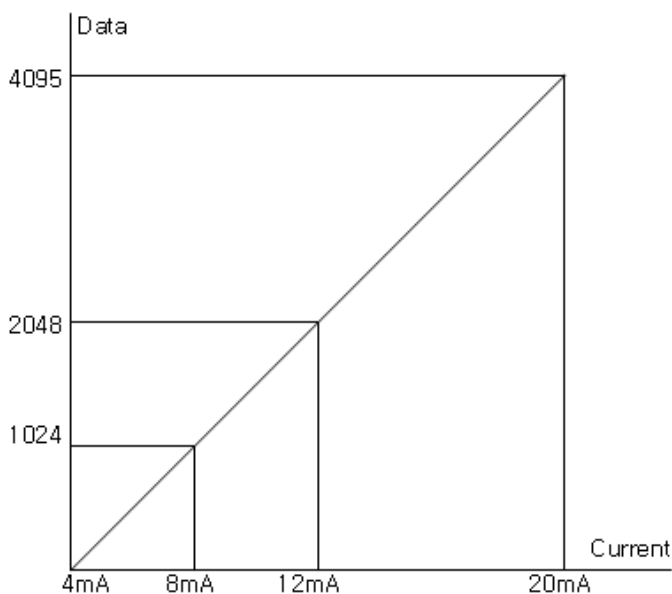
Current Range : 0~20mA

Current	0.0mA	5.0mA	10.0mA	20.0mA
Data(Hex)	H0000	H03FF	H07FF	H0FFF



Current Range : 4~20mA

Current	4.0mA	8.0mA	12.0mA	20.0mA
Data(Hex)	H0000	H03FF	H07FF	H0FFF



2.4.2. Underrun / Overrun Range

Current	Current Range : 0~20mA		Current Range : 4~20mA	
	<0.0mA	>21.0mA	<3.0mA	>21.0mA
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
	Analog Input Ch8
	Analog Input Ch9
	Analog Input Ch10
	Analog Input Ch11
	Analog Input Ch12
	Analog Input Ch13
	Analog Input Ch14
	Analog Input Ch15



● 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
Byte16								Analog Input Ch8 Low byte
Byte17								Analog Input Ch8 High byte
Byte18								Analog Input Ch9 Low byte
Byte19								Analog Input Ch9 High byte
Byte20								Analog Input Ch10 Low byte
Byte21								Analog Input Ch10 High byte
Byte22								Analog Input Ch11 Low byte
Byte23								Analog Input Ch11 High byte
Byte24								Analog Input Ch12 Low byte
Byte25								Analog Input Ch12 High byte
Byte26								Analog Input Ch13 Low byte
Byte27								Analog Input Ch13 High byte
Byte28								Analog Input Ch14 Low byte
Byte29								Analog Input Ch14 High byte
Byte30								Analog Input Ch15 Low byte
Byte31								Analog Input Ch15 High byte

2.6. Parameter Data

- Valid Parameter length: 18 Bytes
- Parameter Data

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0	Current Range for Channel 0 (H00: 0~20mA, H01: 4~20mA)							
Byte1	Current Range for Channel 1 (H00: 0~20mA, H01: 4~20mA)							
Byte2	Current Range for Channel 2 (H00: 0~20mA, H01: 4~20mA)							
Byte3	Current Range for Channel 3 (H00: 0~20mA, H01: 4~20mA)							
Byte4	Current Range for Channel 4 (H00: 0~20mA, H01: 4~20mA)							
Byte5	Current Range for Channel 5 (H00: 0~20mA, H01: 4~20mA)							
Byte6	Current Range for Channel 6 (H00: 0~20mA, H01: 4~20mA)							
Byte7	Current Range for Channel 7 (H00: 0~20mA, H01: 4~20mA)							
Byte8	Current Range for Channel 8 (H00: 0~20mA, H01: 4~20mA)							
Byte9	Current Range for Channel 9 (H00: 0~20mA, H01: 4~20mA)							
Byte10	Current Range for Channel 10 (H00: 0~20mA, H01: 4~20mA)							
Byte11	Current Range for Channel 11 (H00: 0~20mA, H01: 4~20mA)							
Byte12	Current Range for Channel 12 (H00: 0~20mA, H01: 4~20mA)							
Byte13	Current Range for Channel 13 (H00: 0~20mA, H01: 4~20mA)							
Byte14	Current Range for Channel 14 (H00: 0~20mA, H01: 4~20mA)							
Byte15	Current Range for Channel 15 (H00: 0~20mA, H01: 4~20mA)							
Byte16	Filter Time (H00: Default Filter(20) / H01: Fastest ~ / H3E: Slowest)							
Byte17	Reserved							