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# **FnIO G – Series :**

## ***GT-319F***

***GT-319F (16 Channels 18pt RTB, Current Input)***

***0~20mA / 4~20mA, 14bit/16bit***

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## Table of Contents

<a href="#">Table of Contents.....</a>	<a href="#">2</a>
<a href="#">History.....</a>	<a href="#">3</a>
<a href="#">1.ENVIRONMENT SPECIFICATION.....</a>	<a href="#">4</a>
<a href="#">2.GT-319F(16 CHANNELS CURRENT INPUT, 0~20mA/4~20mA, 16BIT).....</a>	<a href="#">5</a>
<a href="#">2.1.GT-319F Specification.....</a>	<a href="#">5</a>
<a href="#">2.2.GT-319F Wiring Diagram.....</a>	<a href="#">6</a>
<a href="#">2.3.GT-319F LED Indicator.....</a>	<a href="#">7</a>
<a href="#">2.3.1.LED Indicator.....</a>	<a href="#">7</a>
<a href="#">2.3.2.Channel Status LED.....</a>	<a href="#">7</a>
<a href="#">2.4.Data value / Current.....</a>	<a href="#">8</a>
<a href="#">2.5.Mapping data into the image table.....</a>	<a href="#">10</a>
<a href="#">2.6.Parameter Data.....</a>	<a href="#">11</a>

# Specification

## History

Rev	Pages	Remarks	Date	Editor
1.00			2018/03/09	Soyeong, Park
1.01	5	Specification Revision	2018/04/12	Soyeong, Park
1.02	5	Edit Resolution in Range	2018/06/14	Soyeong, Park
1.03	5	Specification Revision	2019/01/07	Soyeong, Park
1.04		Edit conversion time	2020/04/17	Seokhyun, Jun
1.05	5-6	Wiring Diagram & Common Type	2020/10/14	Suna, Hwang
1.06		Add Module Resolution (14bit)	2022/06/20	Soyeong, Park
1.07	4,6,8	Change Diagram/Edit Certification /Add Data range	2023/08/01	Soyeong, Park
1.08	5	Edit System Power Dissipation	2025/05/30	Suna, Hwang

# 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	EN61000-6-4/All : 2011
Industrial Immunity	EN 61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL

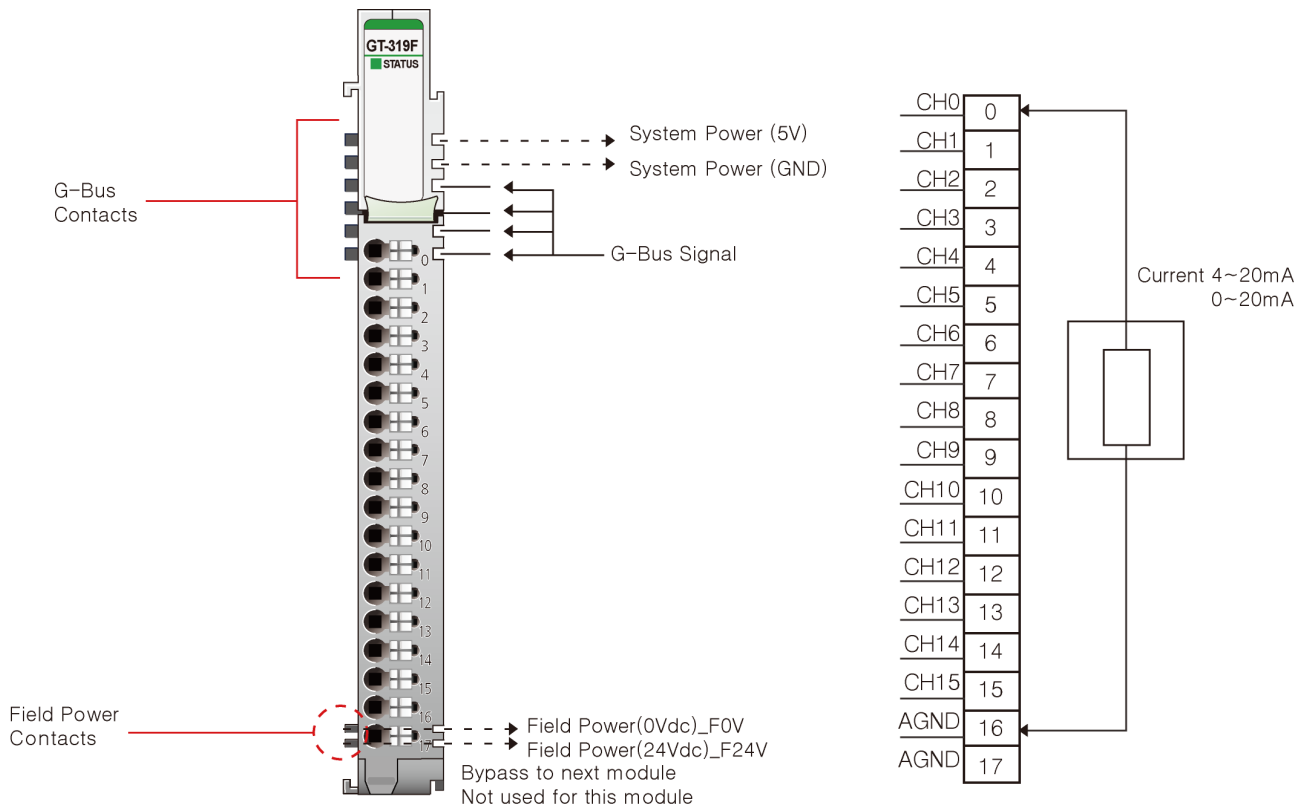
## 2. GT-319F (16 Channels Current Input, 0~20mA / 4~20mA, 16bit)

### 2.1. GT-319F Specification

Items	Specification
<b>Input Specification</b>	
Inputs per module	16 Channels single ended, non-isolated between channel
Indicators	1 Green G-Bus status
Resolution in Ranges*	14 bits : 1.22uA/Bit(0~20mA) 14 bits : 0.98uA/Bit(4~20mA) 16 bit (Include Sign) 15 bits : 0.61uA/Bit(0~20mA) 15 bits : 0.49uA/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
Conversion Time	1.2msec / All channel
Field calibration	Not Required
<b>General Specification</b>	
Power dissipation	Max. 215mA @ 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 <sup>2</sup> (AWG 18)
Weight	63g
Module Size	12mm x 109mm x 70mm
<b>Environment Condition</b>	<b>Refer to 'Environment Specification'</b>

\*Refer to 2.5 Parameter Data

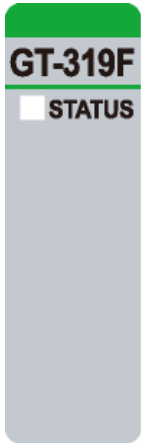
## 2.2. GT-319F Wiring Diagram



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	Input Channel 8
9	Input Channel 9
10	Input Channel 10
11	Input Channel 11
12	Input Channel 12
13	Input Channel 13
14	Input Channel 14
15	Input Channel 15
16	Input Channel Common(AGND)
17	Input Channel Common(AGND)

2.3. GT-319F 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

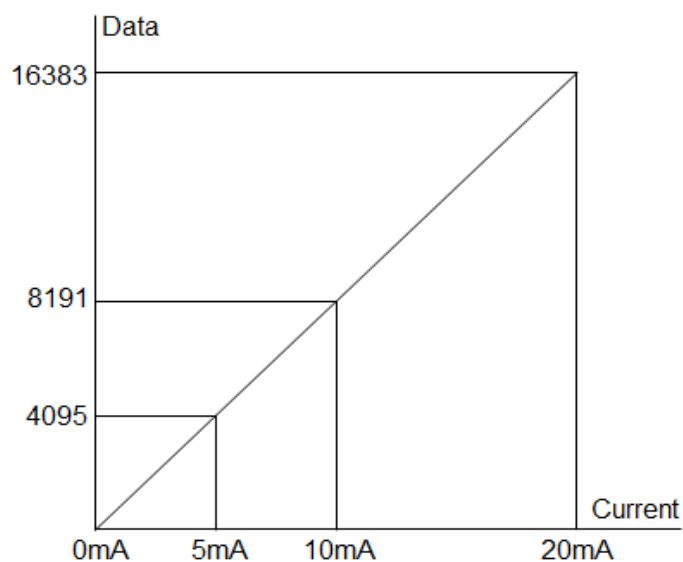
## 2.4. Data value / Current

### 2.4.1. Operating Range

Current Range : 0~20mA

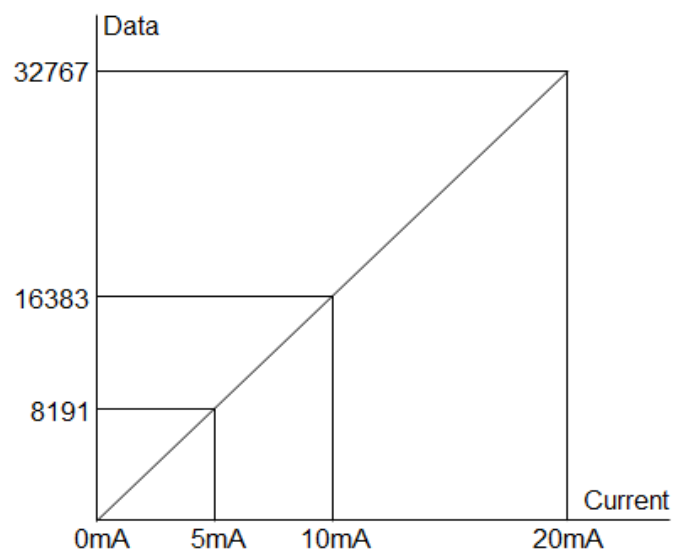
(14bit)

Current	0.0mA	5.0mA	10.0mA	20.0mA
Data(Hex)	H0000	H0FFF	H1FFF	H3FFF



(16bit)

Current	0.0mA	5.0mA	10.0mA	20.0mA
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



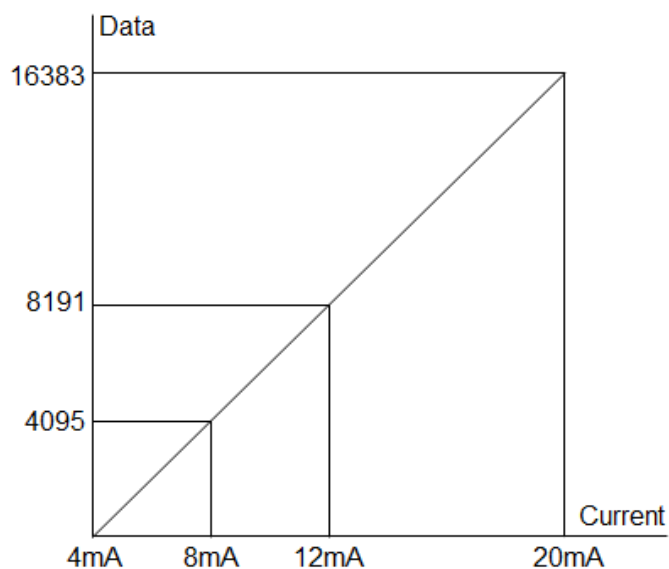


# Specification

## Current Range : 4~20mA

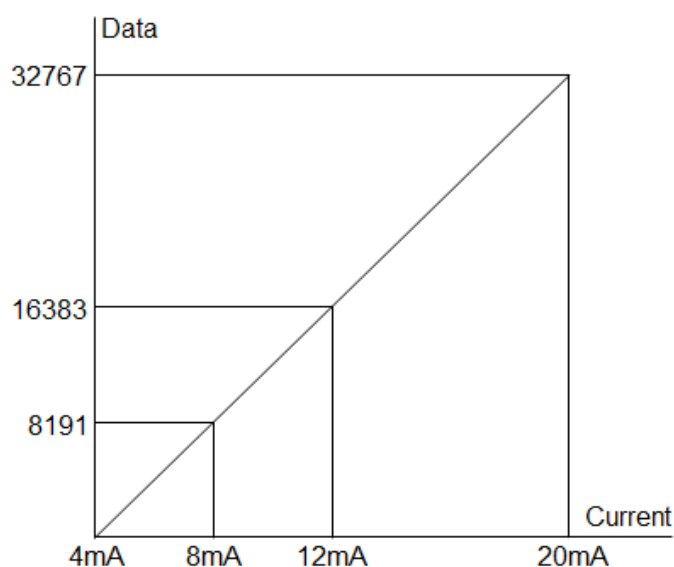
(14bit)

Current	4.0mA	8.0mA	12.0mA	20.0mA
Data(Hex)	H0000	H0FFF	H1FFF	H3FFF



(16bit)

Current	4.0mA	8.0mA	12.0mA	20.0mA
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



### 2.4.2. Undertun / Overrun Range

Current	Current Range : 0~20mA		Current Range : 4~20mA	
	<0.0mA	>21.0mA	<3.0mA	>21.0mA
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
	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
Byte 0	Current Range for Channel 0 (H00: 0~20mA, H01: 4~20mA)							
Byte 1	Current Range for Channel 1 (H00: 0~20mA, H01: 4~20mA)							
Byte 2	Current Range for Channel 2 (H00: 0~20mA, H01: 4~20mA)							
Byte 3	Current Range for Channel 3 (H00: 0~20mA, H01: 4~20mA)							
Byte 4	Current Range for Channel 4 (H00: 0~20mA, H01: 4~20mA)							
Byte 5	Current Range for Channel 5 (H00: 0~20mA, H01: 4~20mA)							
Byte 6	Current Range for Channel 6 (H00: 0~20mA, H01: 4~20mA)							
Byte 7	Current Range for Channel 7 (H00: 0~20mA, H01: 4~20mA)							
Byte 8	Current Range for Channel 8 (H00: 0~20mA, H01: 4~20mA)							
Byte 9	Current Range for Channel 9 (H00: 0~20mA, H01: 4~20mA)							
Byte 10	Current Range for Channel 10 (H00: 0~20mA, H01: 4~20mA)							
Byte 11	Current Range for Channel 11 (H00: 0~20mA, H01: 4~20mA)							
Byte 12	Current Range for Channel 12 (H00: 0~20mA, H01: 4~20mA)							
Byte 13	Current Range for Channel 13 (H00: 0~20mA, H01: 4~20mA)							
Byte 14	Current Range for Channel 14 (H00: 0~20mA, H01: 4~20mA)							
Byte 15	Current Range for Channel 15 (H00: 0~20mA, H01: 4~20mA)							
Byte 16	Filter Time ( H00: Default Filter(20) / H01: Fastest ~ / H3E: Slowest )							
Byte 17	Resolution Selection*	Reserved						

\*Resolution Selection : Resolution for Module ( 0 : 16bit / 1 : 14bit ) (Default (0) : 16bit)