
FnIO G – Series :

GT-3158

GT-3158 (8 Channels, Current Input, 0~20mA / 4~20mA, 14bit/16bit)

Table of Contents

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

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

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

[2.GT-3158 \(8Channels Current Input, 0~20mA / 4~20mA, 14bit/16bit\).....5](#)

[2.1.GT-3158 Specification.....5](#)

[2.2.GT-3158 Wiring Diagram.....6](#)

[2.3.GT-3158 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.....9](#)

[2.5.Mapping data into the image table.....10](#)

[2.6.Parameter Data.....11](#)

History

Rev	Pages	Remarks	Date	Editor
1.00			2018/03/09	Soyeong, Park
1.01	5, 7	Edit Channel Status LED, Resolution in Range	2018/06/14	Soyeong, Park
1.02		Edit conversion time	2020/04/17	Seokhyun, Jun
1.03		Add Module Resolution (14bit)	2022/06/20	Soyeong, Park
1.04		Change Diagram/Edit Certification, Signal Description/Add Data Range	2023/09/05	Soyeong, Park
1.05	5	Edit System, Field 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

Specification

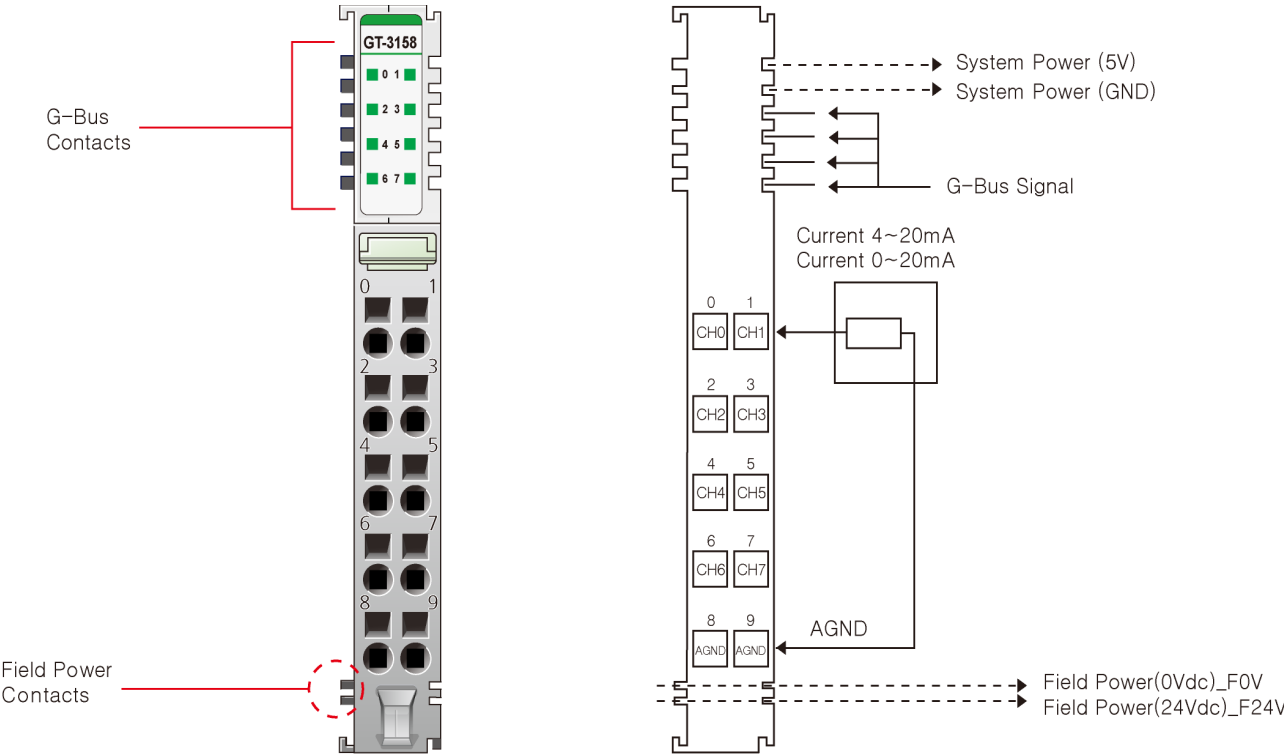
2. GT-3158 (8Channels Current Input, 0~20mA / 4~20mA, 14bit/16bit)

2.1. GT-3158 Specification

Items	Specification
Input Specification	
Inputs per module	8 Channels single ended, non-isolated between channel
Indicators(Logic side)	8 Green Input 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
Diagnostic	Diagnostic Field Power Off : LED Blinking Field Power On : LED Off < 0.5% (Maximum Input Value) Field Power On : LED On > 0.5% (Maximum Input Value) Minimum Range Over : LED Off < 3mA (4 ~ 20mA)
Conversion Time	1.5msec / All channel
Field 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 : Isolation Field power : Non-Isolation
UL Field Power	Supply Voltage : 24Vdc nominal, Class 2
Field Power	Supply Voltage : 24Vdc nominal Voltage Range : 18 ~ 30Vdc Power Dissipation : Max. 35mA @ 24Vdc
Wiring	I/O Cable Max. 2.0mm ² (AWG 14)
Torque	0.8Nm(7lb-in)
Weight	58g
Module Size	12mm x 99mm x 70mm
Environment Condition	Refer to 'Environment Specification'

*Refer to 2.5 Parameter Data

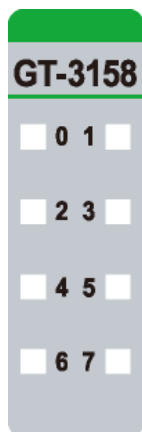
2.2. GT-3158 Wiring Diagram



Pin No.	Signal Description	Signal Description	Pin No.
0	Input Channel 0	Input Channel 1	1
2	Input Channel 2	Input Channel 3	3
4	Input Channel 4	Input Channel 5	5
6	Input Channel 6	Input Channel 7	7
8	Input Channel Common(AGND)	Input Channel Common(AGND)	9

2.3. GT-3158 LED Indicator

2.3.1. LED Indicator



LED No.	LED Function / Description	LED Color
0	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

2.3.2. Channel Status LED

Status	LED	To indicate
Normal Operation	Off	< 0.5% (Maximum Input Value)
	Green	> 0.5% (Maximum Input Value)
Overrun/Underrun	Off	> 21mA (Maximum Range Over < 3mA (Minimum Range Over , 4 ~ 20mA)
Field Power Error	All Channel Repeat the Green and OFF	Field Power is unconnected

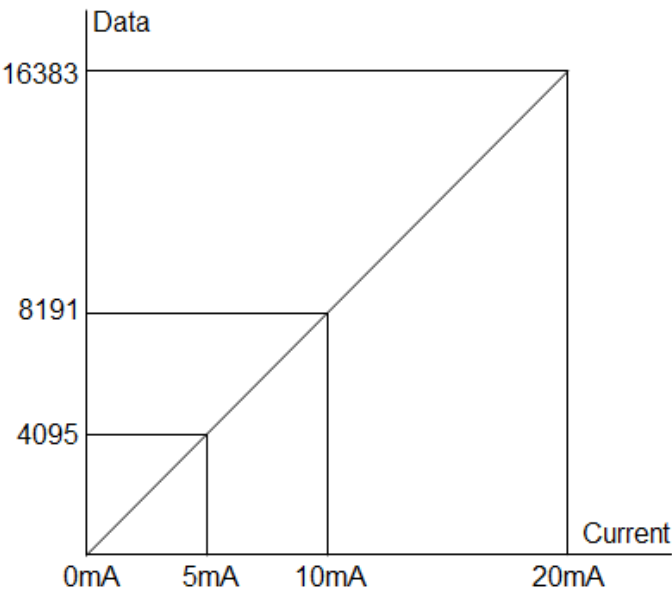
2.4. Data Value / Current

2.4.1. Operating Range

Current Range : 0~20mA

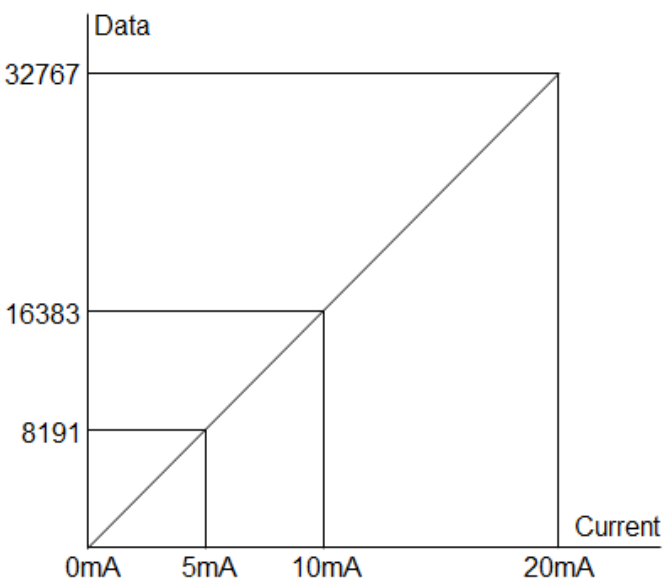
(14bit)

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

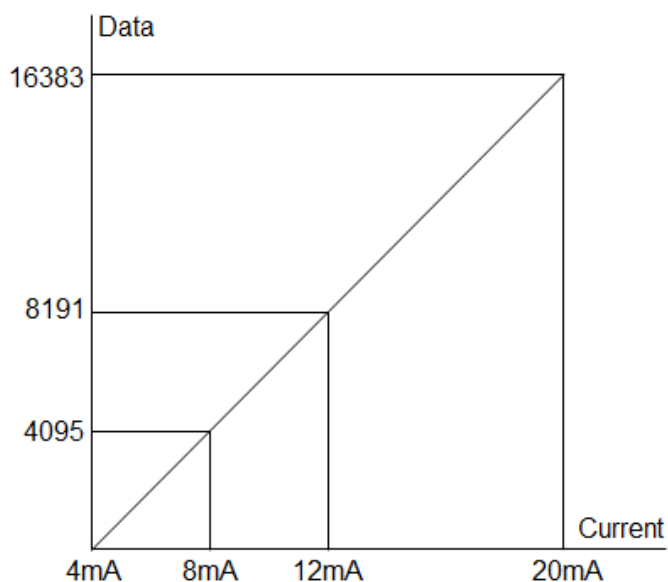


Specification

Current Range : 4~20mA

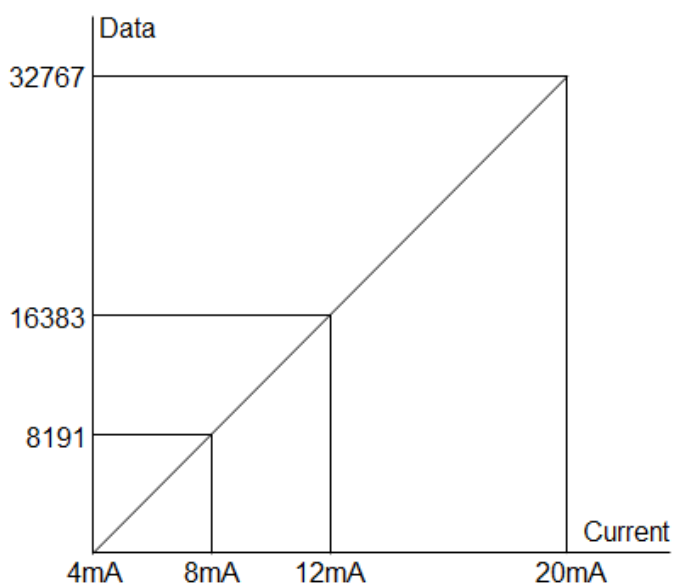
(14bit)

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. Underrun / Overrun Range

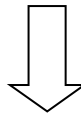
Current	Current Range : 0~20mA		Current Range : 4~20mA	
	<0.0mA	>21.0mA	<3.0mA	>21.0mA
Data(Hex)	-	H7FFF	H8000	H7FFF

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



● 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	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	Filter Time (H00: Default Filter(20) / H01: Fastest ~ / H3E: Slowest)							
Byte 9	Resolution Selection*	Reserved						

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