

FnIO G – Series :

GT-3708

GT-3708 (8 Channels, RTD/RESISTANCE INPUT)

Date: 2016.11.15

Specification

Table of Contents

Table of Contents..... 2

History.....3

1.ENVIRONMENT SPECIFICATION..... 4

2.GT-3708(8 CHANNELS RTD/RESISTANCE INPUT)..... 5

 2.1.GT-3708 Specification 5

 2.2.GT-3708 Wiring Diagram..... 7

 2.3.GT-3708 LED Indicator..... 8

 2.3.1.LED Indicator.....8

 2.3.2.Channel Status LED8

 2.4.Mapping data into the image table.....9

 2.5.Configuration Parameter – 18 byte..... 10

 2.6.Data Value..... 11

Specification

History

REV.	PAGES	REMARKS	DATE	Editor
1	11		May 24, 2016	Hong Jin Hyun
1.01	10	Configuration Parameter Revised.	May 24, 2016	Hong Jin Hyun

Specification

1. ENVIRONMENT SPECIFICATION

Environment specification	
Operation Temperature	-40°C to 70°C
Storage Temperature	-40°C to 85°C
Relative Humidity	5% to 95% Non-condensing
Operating Altitude	2,000m
Mounting	DIN Rail
General specification	
Shock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 Sine Vibration <ul style="list-style-type: none"> - 5 ~ 25Hz : ±1.6mm - 25 ~ 300Hz : 4g - Sweep Rate : 1 Oct/min, 20 cycles Random Vibration <ul style="list-style-type: none"> - 10 ~ 40 Hz : 0.0125 g²/Hz - 40 ~ 100 Hz : 0.0125 → 0.002 g²/Hz - 100 ~ 500 Hz : 0.002 g²/Hz - 500 ~ 2000 Hz : 0.002 → 1.3 x 10⁻⁴g²/Hz - Test time : 1hrs for each test
Industrial Emissions	EN 61000-6-4/A11 : 2011
Industrial Immunity	EN 61000-6-2 : 2005
Installation Pos. / Protect. Class	Variable/IP20
Product Certifications	CE, UL

Specification

2. GT-3708 (8 CHANNELS RTD/RESISTANCE INPUT)

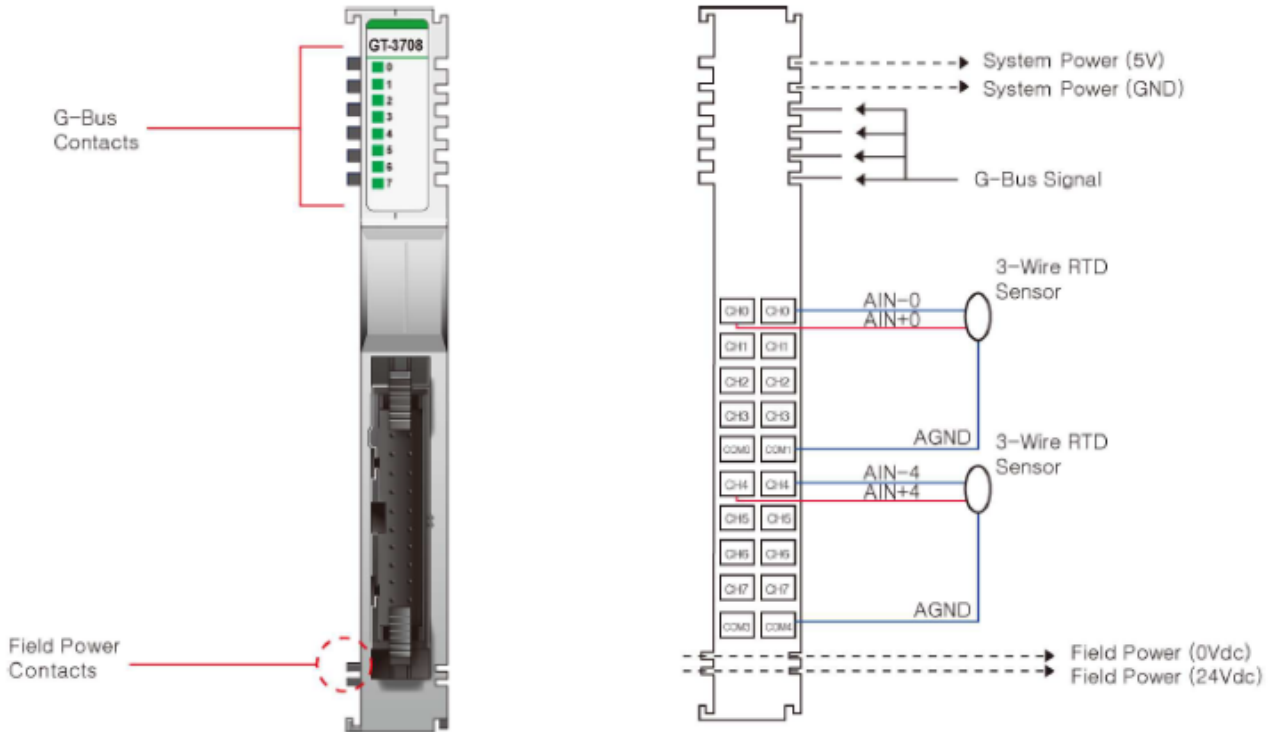
2.1. GT-3708 Specification

Items																																	
Input Specification																																	
Inputs per module	8 Channels																																
Indicators(Logic side)	8 Green Input status																																
Sensor Types	<table border="1"> <thead> <tr> <th colspan="2">RTD Input Range</th> </tr> <tr> <th>RTD Input</th> <th>Input Range</th> </tr> </thead> <tbody> <tr> <td>PT100, PT200, PT500, PT50</td> <td>-200~850°C</td> </tr> <tr> <td>PT1000</td> <td>-200~350°C</td> </tr> <tr> <td>JPT100, JPT200, JPT500, JPT50</td> <td>-200~640°C</td> </tr> <tr> <td>JPT1000</td> <td>-200~350°C</td> </tr> <tr> <td>NI100, NI200, NI500</td> <td>-60~250°C</td> </tr> <tr> <td>NI1000</td> <td>-60~180°C</td> </tr> <tr> <td>NI120</td> <td>-80~260°C</td> </tr> <tr> <td>NI1000LG</td> <td>-50~120°C</td> </tr> <tr> <th colspan="2">Resistance Input</th> </tr> <tr> <th></th> <th>Input Range</th> </tr> <tr> <td>100mΩ/bit</td> <td>0~2000Ω</td> </tr> <tr> <td>10mΩ/bit</td> <td>0~327Ω</td> </tr> <tr> <td>20mΩ/bit</td> <td>0~620Ω</td> </tr> <tr> <td>50mΩ/bit</td> <td>0~1200Ω</td> </tr> </tbody> </table>	RTD Input Range		RTD Input	Input Range	PT100, PT200, PT500, PT50	-200~850°C	PT1000	-200~350°C	JPT100, JPT200, JPT500, JPT50	-200~640°C	JPT1000	-200~350°C	NI100, NI200, NI500	-60~250°C	NI1000	-60~180°C	NI120	-80~260°C	NI1000LG	-50~120°C	Resistance Input			Input Range	100mΩ/bit	0~2000Ω	10mΩ/bit	0~327Ω	20mΩ/bit	0~620Ω	50mΩ/bit	0~1200Ω
RTD Input Range																																	
RTD Input	Input Range																																
PT100, PT200, PT500, PT50	-200~850°C																																
PT1000	-200~350°C																																
JPT100, JPT200, JPT500, JPT50	-200~640°C																																
JPT1000	-200~350°C																																
NI100, NI200, NI500	-60~250°C																																
NI1000	-60~180°C																																
NI120	-80~260°C																																
NI1000LG	-50~120°C																																
Resistance Input																																	
	Input Range																																
100mΩ/bit	0~2000Ω																																
10mΩ/bit	0~327Ω																																
20mΩ/bit	0~620Ω																																
50mΩ/bit	0~1200Ω																																
Excitation Current	About 1mA																																
Connection Method	3-Wire																																
Conversion Time	< 280ms, All Channel																																
Data Format	16bits signed Integer (2' complement)																																
Module Accuracy	PT100, PT1000 type Range <ul style="list-style-type: none"> ±0.5°C @ 25°C All type Input Range <ul style="list-style-type: none"> ±0.1% Full Scale @ 25°C ambient ±0.3% Full Scale @ -40°C~70°C 																																
Resolution of Data	RTD Type : ±0.1°C / F , Resistance Type : 100mΩ, 10mΩ, 20mΩ, 50mΩ																																
Calibration	Not Required																																

Specification

Diagnostic	Sensor open or range over, then conversion data = 0x8000(-32768)
General specification	
Power dissipation	Max. 120mA @ 5.0Vdc
Isolation	I/O to Logic : Isolation Field power : Not Connected
Field Power	Not used, Field power bypass to next expansion module
Wiring	I/O Cable Max. 2.0mm ² (AWG 14)
Weight	60g
Module Size	12mm x 99mm x 70mm
Environment Condition	Refer to 'Environment Specification'

2.2. GT-3708 Wiring Diagram

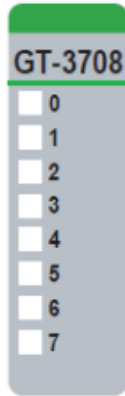


Pin No.	Signal Description	Signal Description	Pin No.
0	RTD Channel 0+	RTD Channel 0-	1
2	RTD Channel 1+	RTD Channel 1-	3
4	RTD Channel 2+	RTD Channel 2-	5
6	RTD Channel 3+	RTD Channel 3-	7
8	AGND	AGND	9
10	RTD Channel 4+	RTD Channel 4-	11
12	RTD Channel 5+	RTD Channel 5-	13
14	RTD Channel 6+	RTD Channel 6-	15
16	RTD Channel 7+	RTD Channel 7-	17
18	AGND	AGND	19

Specification

2.3. GT-3708 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

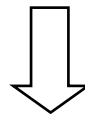
2.3.2. Channel Status LED

Status	LED	To indicate
Not Signal, Normal Operation	Off	Input Sensor Open or Input Range Over Normal Operation
On Signal Normal Operation	Green	Sensor Connected and Input Range Valid Normal Operation

2.4. 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
Byte 0	Analog Input Ch0 Low byte							
Byte 1	Analog Input Ch0 High byte							
Byte 2	Analog Input Ch1 Low byte							
Byte 3	Analog Input Ch1 High byte							
Byte 4	Analog Input Ch2 Low byte							
Byte 5	Analog Input Ch2 High byte							
Byte 6	Analog Input Ch3 Low byte							
Byte 7	Analog Input Ch3 High byte							
Byte 8	Analog Input Ch4 Low byte							
Byte 9	Analog Input Ch4 High byte							
Byte 10	Analog Input Ch5 Low byte							
Byte 11	Analog Input Ch5 High byte							
Byte 12	Analog Input Ch6 Low byte							
Byte 13	Analog Input Ch6 High byte							
Byte 14	Analog Input Ch7 Low byte							
Byte 15	Analog Input Ch7 High byte							

- If the input of channel is open or over-ranged, its conversion data will be 0x8000(-32678)

Specification

2.5. Configuration Parameter – 18 byte

Byte	Decimal Bit	Description	Default Value
0	00-07	The selection Sensor Type =00h:PT100, 0.00385, -200~850°C, 0.1°C/count =01h:PT200, 0.00385, -200~850°C, 0.1°C/count =02h:PT500, 0.00385, -200~850°C, 0.1°C/count =03h:PT1000, 0.00385, -200~350°C, 0.1°C/count =04h:PT50, 0.00385, -200~850°C, 0.1°C/count =10h:JPT100, 0.003916, -200~640°C, 0.1°C/count =11h:JPT200, 0.003916, -200~640°C, 0.1°C/count =12h:JPT500, 0.003916, -200~640°C, 0.1°C/count =13h:JPT1000, 0.003916, -200~350°C, 0.1°C/count =14h:JPT50, 0.003916, -200~640°C, 0.1°C/count =20h:NI100, 0.00618, -60~250°C, 0.1°C/count =21h:NI200, 0.00618, -60~250°C, 0.1°C/count =22h:NI500, 0.00618, -60~250°C, 0.1°C/count =23h:NI1000, 0.00618, -60~180°C, 0.1°C/count =30h:NI120, 0.00672, -80~250°C, 0.1°C/count =53h:NI1000LG, 0.00500, -50~120°C, 0.1°C/count =80h:Resistance Input, 1~2000Ω, 100mΩ /1count =81h:Resistance Input, 1~327Ω, 10mΩ /1count =82h:Resistance Input, 1~620Ω, 20mΩ /1count =83h: Resistance Input, 1~1200Ω, 50mΩ/1count =Others: Reserved	0: PT100
1	00	Temperature Type 0: Celsius(°C), 1: Fahrenheit(°F)	0: Celsius(°C)
	01	Reserved	0
	02	Data Resolution 0: 0.1°C, °F/bit, 1: 1°C, °F/bit	0
	03	Reserved	0
	04	Filter Type 0: Normal Filter, 1: Enhanced Filter	0: Normal Filter
	05-07	Reserved	0
2~3		CH0 Offset value	0
4~5		CH1 Offset value	0
6~7		CH2 Offset value	0
8~9		CH3 Offset value	0
10~11		CH4 Offset value	0
12~13		CH5 Offset value	0
14~15		CH6 Offset value	0
16~17		CH7 Offset value	0

Specification

2.6. Data Value

Resistance Temperature Detector Input Range	
Type	Input Range
PT100	-200 ~ 850 °C
PT200	-200 ~ 850 °C
PT500	-200 ~ 850 °C
PT1000	-200 ~ 350 °C
PT50	-200 ~ 850 °C
JPT100	-200 ~ 640 °C
JPT200	-200 ~ 640 °C
JPT500	-200 ~ 640 °C
JPT1000	-200 ~ 350 °C
JPT50	-200 ~ 640 °C
NI100	-60 ~ 250 °C
NI200	-60 ~ 250 °C
NI500	-60 ~ 250 °C
NI1000	-60 ~ 180 °C
NI120	-80 ~ 260 °C
NI1000LG	-50 ~ 120 °C
Resistance Input Range	
Type	Input Range
100mΩ/bit	0~2000Ω
10mΩ/bit	0~327Ω
20mΩ/bit	0~620Ω
50mΩ/bit	0~1200Ω