

FnIO G-series

GT-5914

GT-5914 (4 channels, Current Input, 4-20mA with HART)

Specification

Table of Contents

Table of Contents.....	2
History.....	3
1. ENVIRONMENT SPECIFICATION.....	4
2.GT-5914(4ch 4-20mA HART with Module).....	5
2.1. GT-5914 Specification.....	5
2.2.GT-5914 Wiring Diagram	6
2.3.LED Indicator.....	7
2.3.1.Channel Status LED.....	7
2.3.2.Channel Status LED.....	7
2.3.3.Error Status LED.....	7
2.4.Mapping data into the image table (Basic Mode).....	8
2.5.Mapping data into the image table (Extend Mode).....	9
2.6.Configuration Parameter Data.....	11
2.7. Supported Commands.....	11

Specification

1. ENVIRONMENT SPECIFICATION

Environmental specification	
Operation Temperature	-40°C to 70°C
Storage Temperature	-40°C to 85°C
Relative Humidity	5% to 90% 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 Sweeps 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

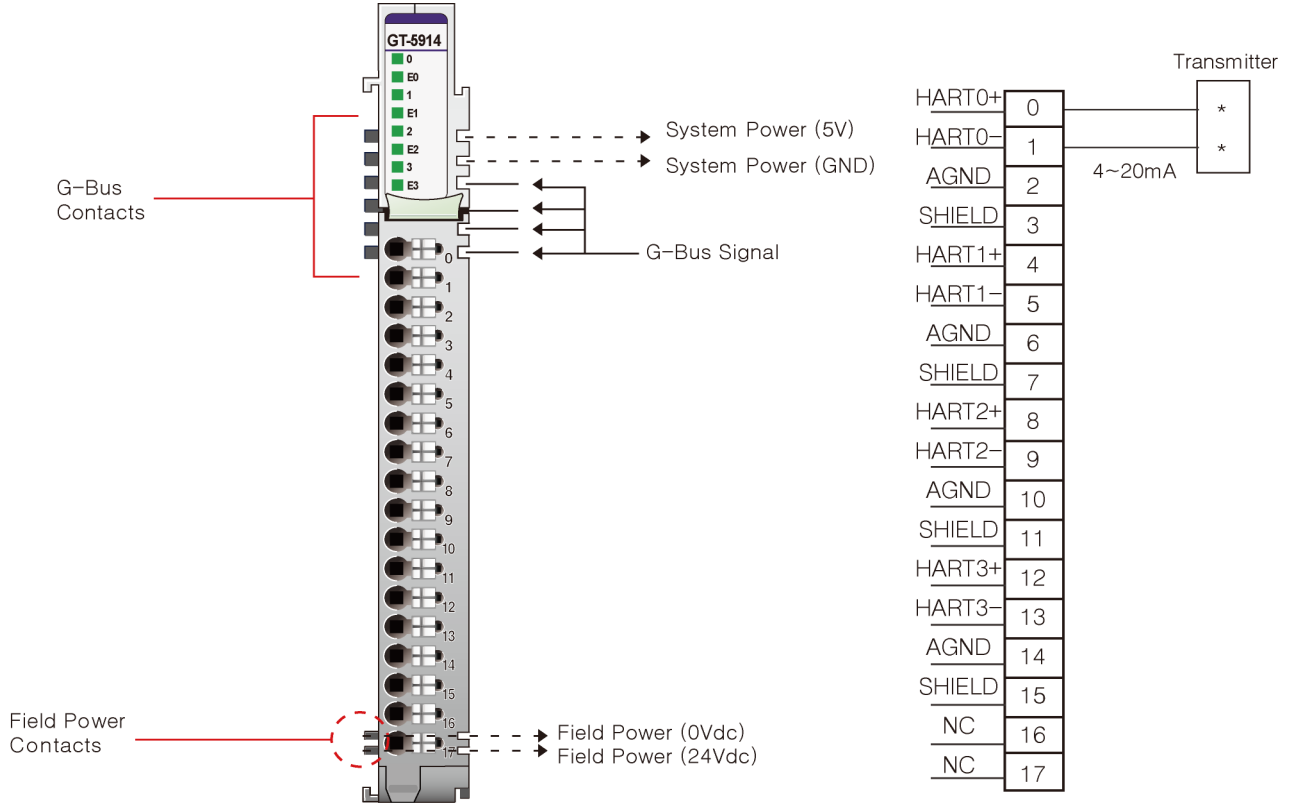
Specification

2. GT-5914(4ch 4-20mA with HART Module)

2.1. GT-5914 Specification

Items	Specification
Analog Input	
Number of Channel	4 Channels single ended, non-isolated between channels
Indicators	4 Green & 4 Red Input status, 1 Green Module status
Resolution in Ranges	16 bits (Include Sign) 15 bits : 0.49uA/Bit(4~20mA)
Module Error	±0.1% Full Scale @ 25°C ambient ±0.3% Full Scale @ -40°C, 70°C
Input Impedance	270Ω
Conversion Time	30msec / All channel
Field calibration	Not Required
Common Type	4 Common, Field Power 0V is Common(AGND)
HART Specification	
HART Version	Revision 5
Open circuit detection	I _{meas} < 3.5mA
Short circuit detection	I _{meas} > 22mA
HART devices per channel	1 device(single-drop, no multi-drop)
General Specification	
Power Dissipation	Max. 30mA @ 5.0Vdc
Isolation	I/O to Logic : Isolation
Field Power	Supply voltage : 24Vdc nominal Voltage range : 18~32Vdc, Power Dissipation : Max. 10mA @ 24Vdc
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-5914 Wiring Diagram

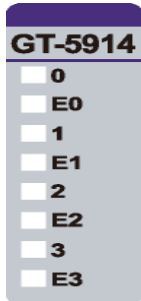


Pin No.	Signal Description	Signal Description	Pin No.
0	HART0+	HART0-	1
2	AGND	SHIELD	3
4	HART1+	HART1-	5
6	AGND	SHIELD	7
8	HART2+	HART2-	9
10	AGND	SHIELD	11
12	HART3+	HART3-	13
14	AGND	SHIELD	15
16	NC	NC	17

Specification

2.3. LED Indicator

2.3.1. Channel Status LED



LED No.	LED Function / Description	LED Color
0	Analog Input 4~20mA	Green
E0	0ch : Hart Communication Error	Red
1	Analog Input 4~20mA	Green
E1	1ch : Hart Communication Error	Red
2	Analog Input 4~20mA	Green
E2	2ch : Hart Communication Error	Red
3	Analog Input 4~20mA	Green
E3	3ch : Hart Communication Error	Red

2.3.2. Channel Status LED

Status	LED	To Indicate
Analog Signal	On	Analog input data range is within 4 ~ 20mA.
	Off	The analog input data range does not fall within 4 ~20mA or disconnection.

2.3.3. Error Status LED

Status	LED	To Indicate
Hart Communication	On	Hart communication does not work.
	Off	Hart communication works normally.

2.4. Mapping data into the image table (Basic Mode)

- **Input Image Value (24 Byte)**

Byte	Input Image Data							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Analog Input Data								
0	Analog Input 0							
1								
2								
3								
4	Analog Input 1							
5								
6								
7								
8	Analog Input 2							
9								
10								
11								
12	Analog Input 3							
13								
14								
15								
Hart Data								
8	Variable Data 0 (PV,SV,TV,QV)							
9								
10								
11								
12	Variable Data 1 (PV,SV,TV,QV)							
13								
14								
15								
16	Variable Data 2 (PV,SV,TV,QV)							
17								
18								
19								
20	Variable Data 3 (PV,SV,TV,QV)							
21								
22								
23								

- **Output Image Value (4 Byte)**

Byte	Output Image Data							
	Control Word 0							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Variable Data 1 / Data Sel		Variable Data 1 / ch Sel		Variable Data 0 / Data Sel		Variable Data 0 / ch Sel	
1	Variable Data 3 / Data Sel		Variable Data 3 / ch Sel		Variable Data 2 / Data Sel		Variable Data 2 / ch Sel	
2	Reserved							
3	Reserved							

Variable Data x Sel : 0=PV, 1=SV, 2=TV, 3=QV

Variable Data x ch Sel : 0=0ch, 1=1ch, 2=2ch, 3=3ch

Ex) Variable Data 0 = 0ch, SV

Variable Data 0 / Data Sel : 1 → bit 01

Variable Data 0 / ch Sel : 0 → bit 00

Ex) Variable Data 3 = 1ch, QV

Variable Data 3 / Data Sel : 3 → bit 11

Variable Data 3 / ch Sel : 1 → bit 01

Specification

2.5. Mapping data into the image table (Extend Mode)

- **Input Image Value (24 Byte)**

Byte	Input Image Data							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Analog Input Data								
0	Analog Input 0							
1								
2								
3								
4	Analog Input 1							
5								
6								
7	Analog Input 2							
8								
9	Analog Input 3							
10								
Hart Data								
11	Success	CMC Error	CMD Error	Run	Communication Count			
12	Response Data 0 byte							
13	Response Data 1 byte							
14	Response Data 2 byte							
15	Response Data 3 byte							
16	Response Data 4 byte							
17	Response Data 5 byte							
18	Response Data 6 byte							
19	Response Data 7 byte							
20	Response Data 8 byte							
21	Response Data 9 byte							
22	Response Data 10 byte							
23	Response Data 11 byte							
	Response Data 12 byte							
	Response Data 13 byte							
	Response Data 14 byte							

* STATUS

Run = Communication Running

CMD Error = Command Error

CMC Error = Communication Error

Success = Communication Success

Specification

● **Output Image Value (4 Byte)**

Byte	Output Image Data							
	Control Word 0							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	channel Select							
1	Command							
2	Reserved			START	Communication Count			
3	Reserved							

The START bit must be set to start communication.

Example) How to Communication

Channel : 2

Command : 3

Step#1

Output Data = 0x01, 0x03, 0x10, 0x00

Byte	Hex
0	0x01
1	0x03
2	0x10
3	0x00

Step#2

Check Status Byte.

If Run is 1, Communication is in progress.

If Success is 1, Communication is Completed.

If Communication is completed. Go to Step#3

Byte	Hart Data				
8	Success	CMC Error	CMD Error	Run	Communication Count

Step#3

Output Data = 0x01, 0xFF(Read Response Data), 0x00(Communication Count), 0x00

If the number of response data exceeds 15byte, if you send the command(FF) by increasing Communication Count, you can check the response data after 15byte.

Byte	Hex
0	0x01
1	0xFF
2	0x10
3	0x00

Specification

2.6. Configuration Parameter Data

Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Remarks(*)
0	Mode	Retry Time							WH
1	Filter Time							WH	
2	Reserved							WH	
3	Reserved							WH	

Mode 0 : Basic Mode

Mode 1 : Extend Mode

Retry Time : Min 5, Max 10 (Hart Communication Retry Time/If Fail)

Filter Time : Min 20, Max 255 (Analog Input Filter)

2.7. Supported Commands

Commands	decription	
Universal Command	0	Read Unique Identifier
	1	Read Primary Variable
	2	Read Current and Percent of Range
	3	Read all dynamic Variables and Current
	12	Read Message
	13	Read Tag, Descriptor, Date
	14	Read Primary Variable Sensor Information
	15	Read Primary Variable Output Information
16	Read Final Assembly Number	
Common Practice Command	48	Read Additional Transmitter Status