

FnIO G-Series

GT-3914, GT-3924, GT-3934, GT-3944

GT-3914 (4 Channels, Differential Current Input, 0~20mA / 4~20mA / -20~20mA, 12bits)

GT-3924 (4 Channels, Differential Voltage Input, 0~10V / 0~5V / -10~10V / -5~5V, 12bits)

GT-3934 (4 Channels, Differential Current Input, 0~20mA / 4~20mA / -20~20mA, 16bits)

GT-3944 (4 Channels, Differential Voltage Input, 0~10V / 0~5V / -10~10V / -5~5V, 16bits)

History

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1. Environment Specification

Environmental Specification	
Operation Temperature	-40°C ~ 60°C
UL Temperature	-20°C ~ 60°C
Non-Operating 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 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 10⁻⁴ g²/Hz - Test time : 1hrs for each test
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

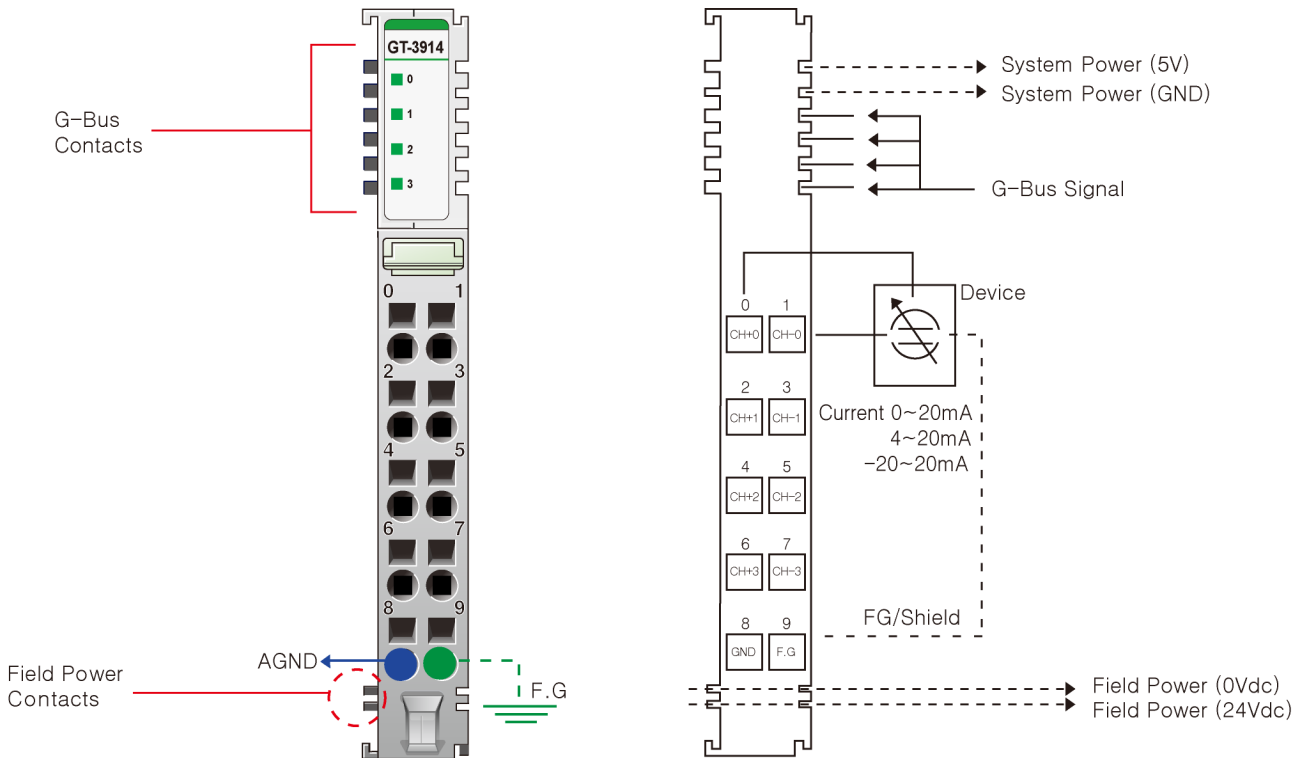
Specification

2. GT-3914 (4 Channels, Differential Current Input, 0~20mA / 4~20mA / -20~20mA, 12bits)

2.1. GT-3914 Specification

Items	Specification
Input Specification	
Inputs Per Module	4 Channels Differential, Non-isolated Between Channels
Indicators	4 Green Input Status LEDs
Resolution in Ranges	12 bits : 4.88uA/bit(0~20mA) 12 bits : 3.91uA/bit(4~20mA) 12 bits : 9.77uA/bit(-20~20mA)
Input Range	0~20mA, 4~20mA, -20~20mA
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	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) Maximum Range Over : LED Off > 21mA Minimum Range Over : LED Off < 3mA (4~20mA) Minimum Range Over : LED Off < -20mA (-20~20mA)
Conversion Time	1msec / All channel
Calibration	Not Required
Common Type	1 Common, Field Power 0V is Common(AGND)
General Specification	
Power Dissipation	Max. 30mA @ 5Vdc
Isolation	I/O to Logic : Photocoupler Isolation Field power : DC/DC Converter Isolation
Field Power	Supply Voltage : 24Vdc nominal Voltage Range : 60°C : 18 ~ 26.4Vdc 50°C : 18 ~ 32Vdc Power Dissipation : Max. 40mA@24Vdc
Wiring	I/O Cable Max. 2.0mm ² (AWG 14)
Weight	58g
Module Size	12mm x 99mm x 70mm
Environment Condition	Refer to 'Environment Specification'

GT-3914 Wiring Diagram



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

2.2. GT-3914 LED Indicator

2.2.1. 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

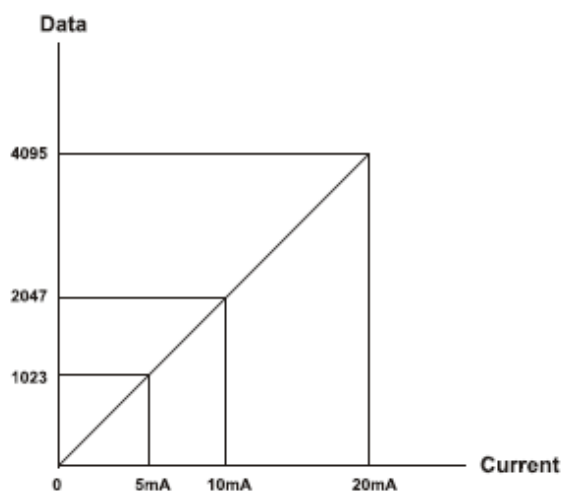
2.2.2. Channel Status LED

Status	LED	To indicate
Normal Operation	[LED Off < 0.5% (Maximum Input Value)] - Channel OFF [LED On > 0.5% (Maximum Input Value)] - Channel Green	Normal Operation
Normal Operation	0~20mA : LED Off > 21mA, LED Off < 0mA 4~20mA : LED Off > 21mA, LED Off < 3mA -20~20mA : LED Off > 21mA, LED Off < -21mA	Over range Check
Field Power Error	All Channel Repeat the Green and OFF	Field Power is unconnected

Data Value / Current

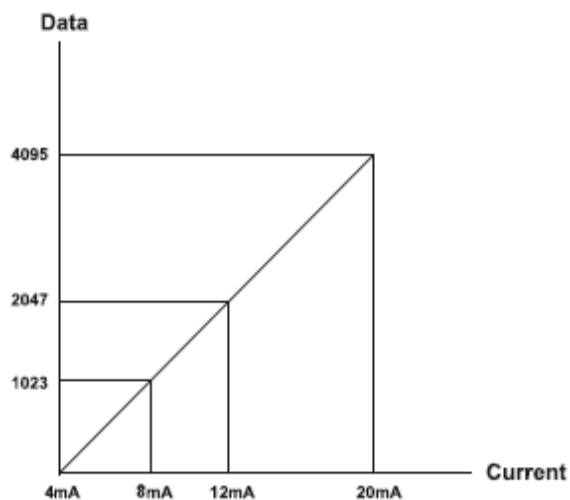
Current Range : 0~20mA

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



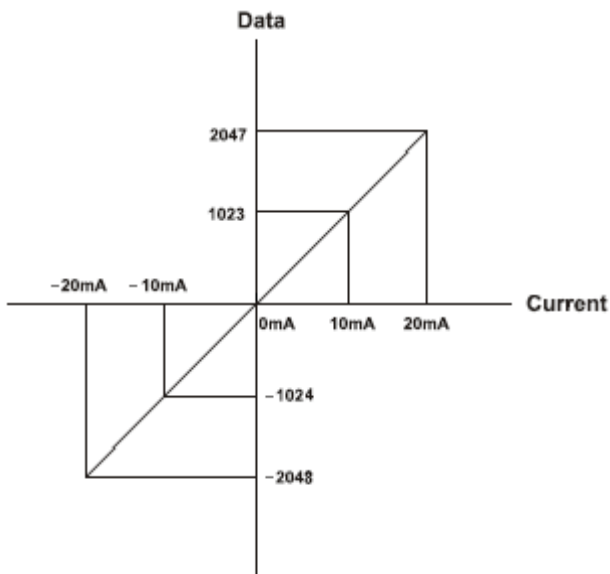
Current Range : 4~20mA

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



Current Range : -20~20mA

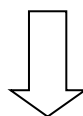
Current	-20.0mA	-10.0mA	0mA	+10.0mA	+20.mA
Data(Hex)	HF800	HFC00	H0000	H03FF	H07FF



2.3. Mapping Data into the Image Table

- **Input Module Data**

Analog Input Ch0
Analog Input Ch1
Analog Input Ch2
Analog Input Ch3



- **Input Image Value**

Specification

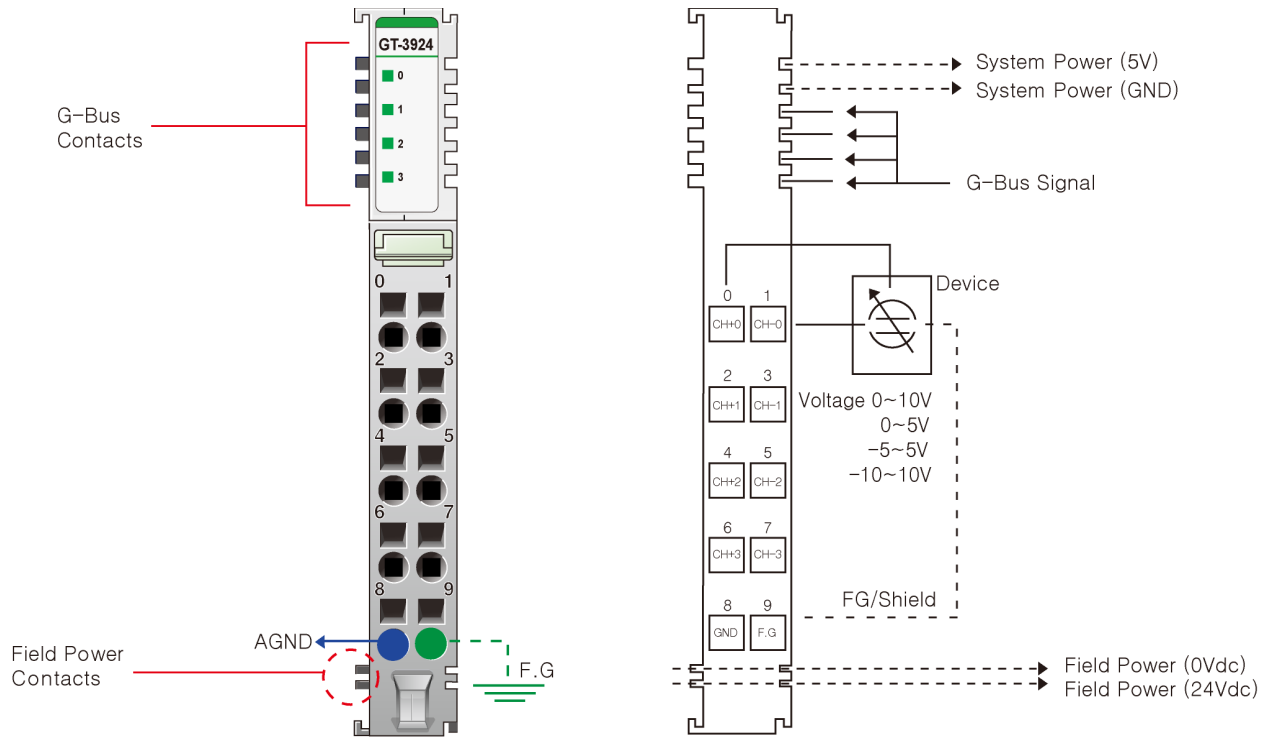
Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Analog Input Ch0 Low byte							
Byte 1	Analog Input Ch0 High byte							
Byte 2	Analog Input Ch1 Low byte							
Byte 3	Analog Input Ch1 High byte							
Byte 4	Analog Input Ch2 Low byte							
Byte 5	Analog Input Ch2 High byte							
Byte 6	Analog Input Ch3 Low byte							
Byte 7	Analog Input Ch3 High byte							

3. GT-3924 (4 Channels, Differential Voltage Input, 0~10V / 0~5V / -10~10V / -5~5V, 12bits)

3.1. GT-3924 Specification

Items	Specification
Input Specification	
Inputs Per Module	4 Channels Differential, Non-isolated Between Channels
Indicators	4 Green Input Status LEDs
Resolution in Ranges	12 bits : 2.44mV/Bit(0~10V) 12 bits : 1.22mV/Bit(0~5V) 12 bits : 4.88mV/Bit(-10~10V) 12 bits : 2.44mV/Bit(-5~5V)
Input Range	0~10Vdc, 0~5Vdc, -10~10Vdc, -5~5Vdc
Data Format	16bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ±0.3% Full Scale @ -40°C, 60°C
Input Impedance	667kΩ
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)
Conversion Time	1msec / All channel (≤ 0.25ms per channel)
Calibration	Not Required
Common Type	1 Common, Field Power 0V is Common(AGND)
General Specification	
Power Dissipation	Max. 30mA @ 5Vdc
Isolation	I/O to Logic : Photocoupler Isolation Field power : Non-Isolation
Field Power	Supply Voltage : 24Vdc nominal Voltage Range : 18 ~ 32Vdc Power Dissipation : Max. 45mA@24Vdc
Wiring	I/O Cable Max. 2.0mm ² (AWG 14)
Weight	58g
Module Size	12mm x 99mm x 70mm
Environment Condition	Refer to 'Environment Specification'

GT-3924 Wiring Diagram



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

3.2. GT-3924 LED Indicator

3.2.1. LED Indicator



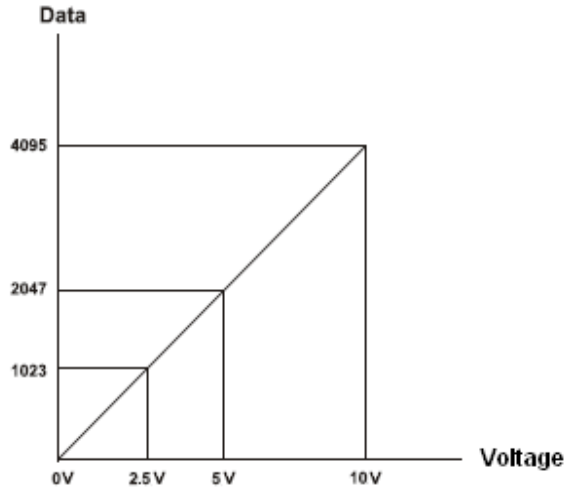
3.2.2. Channel Status LED

Status	LED	To indicate
Normal Operation	[LED Off < 0.5% (Maximum Input Value)] - Channel OFF [LED On > 0.5% (Maximum Input Value)] - Channel Green	Normal Operation
Field Power Error	All Channel Repeat the Green and OFF	Field Power is unconnected

Data Value / Voltage

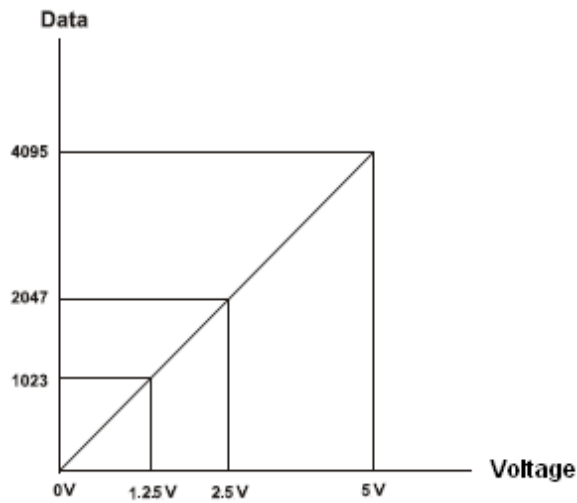
Voltage Range : 0~10V

Voltage	0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



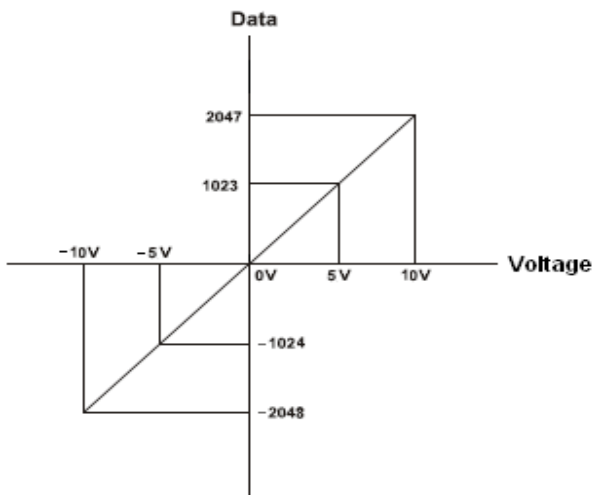
Voltage Range : 0~5V

Current	0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



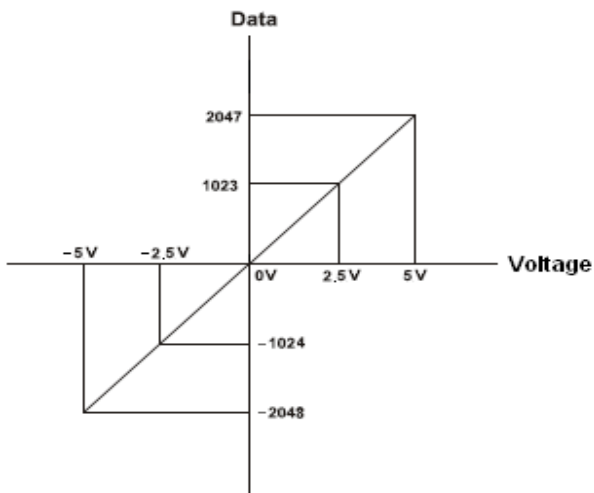
Voltage Range : -10~10V

Current	-10V	-5V	0V	5.0V	10.0V
Data(Hex)	HF800	HFC00	H0000	H03FF	H07FF



Voltage Range : -5~5V

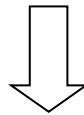
Current	-5V	-2.5V	0V	2.5V	5.0V
Data(Hex)	HF800	HFC00	H0000	H03FF	H07FF



3.3. Mapping Data into the Image Table

- **Input Module Data**

Analog Input Ch0
Analog Input Ch1
Analog Input Ch2
Analog Input Ch3



- **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							

4. **GT-3934 (4 Channels, Differential Current Input, 0~20mA / 4~20mA / -20~20mA, 16bits)**

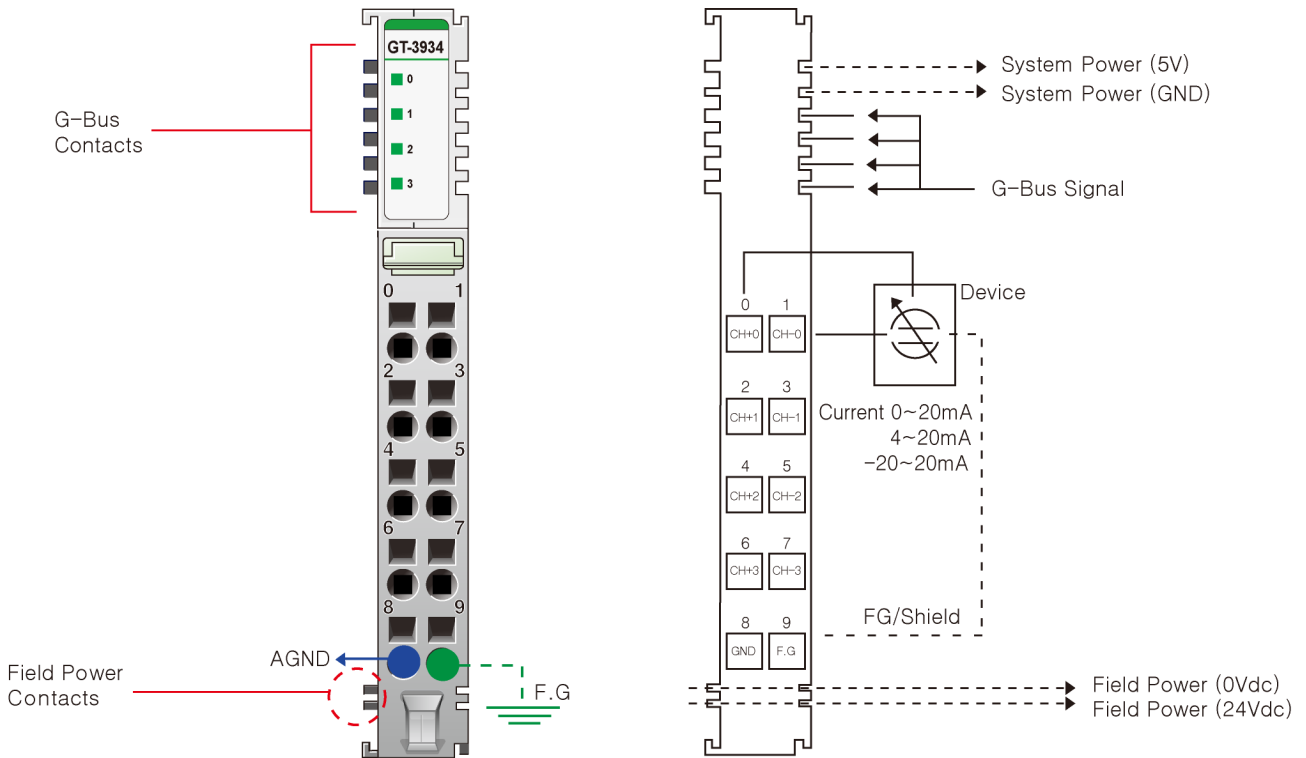
4.1. **GT-3934 Specification**

Items	Specification
Input Specification	
Inputs Per Module	4 Channels Differential, Non-isolated Between Channels
Indicators	4 Green Input Status LEDs
Resolution in Ranges	16bit(Include Sign) 15 bits : 0.61uA/Bit(0~20mA) 15 bits : 0.49uA/Bit(4~20mA) 15bit(Include Sign) 15 bits : 1.22uA/Bit(-20~20mA)
Input Range	0~20mA, 4~20mA, -20~20mA
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	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 < 0mA (0~20mA) Minimum Range Over : LED Off < 3mA (4~20mA) Maximum Range Over : LED Off > 21mA(-20~20mA) Minimum Range Over : LED Off < -21mA (-20~20mA)
Conversion Time	1msec / All channel

Specification

Calibration	Not Required
Common Type	1 Common, Field Power 0V is Common(AGND)
General Specification	
Power Dissipation	Max. 30mA @ 5Vdc
Isolation	I/O to Logic : Photocoupler Isolation Field power : DC/DC Converter Isolation
Field Power	Supply Voltage : 24Vdc nominal Voltage Range : 60°C : 18 ~ 26.4Vdc 50°C : 18 ~ 32Vdc Power Dissipation : Max. 40mA@24Vdc
Wiring	I/O Cable Max. 2.0mm ² (AWG 14)
Weight	58g
Module Size	12mm x 99mm x 70mm
Environment Condition	Refer to 'Environment Specification'

GT-3934 Wiring Diagram



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

4.2. GT-3934 LED Indicator

4.2.1. 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

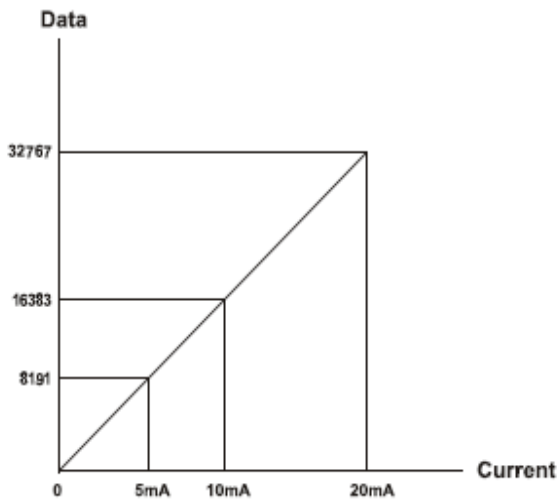
4.2.2. Channel Status LED

Status	LED	To indicate
Normal Operation	[LED Off < 0.5% (Maximum Input Value)] - Channel OFF [LED On > 0.5% (Maximum Input Value)] - Channel Green	Normal Operation
Normal Operation	0~20mA : LED Off < 0mA 4~20mA : LED Off < 3mA -20~20mA : LED Off > 21mA, LED Off < -21mA	Over range Check
Field Power Error	All Channel Repeat the Green and OFF	Field Power is unconnected

Data Value / Current

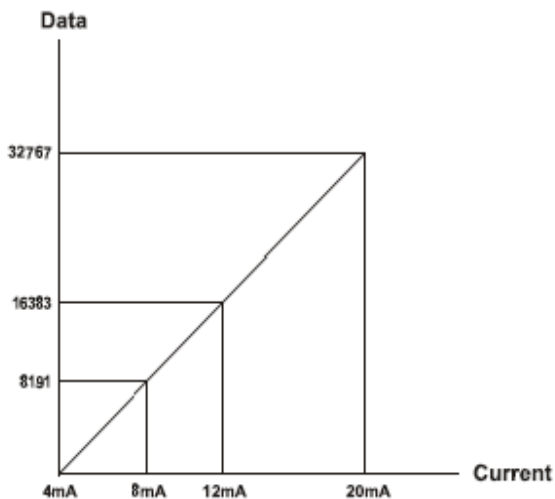
Current Range : 0~20mA

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



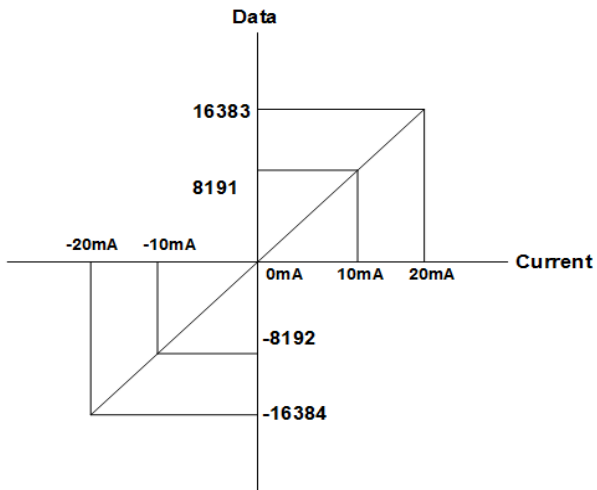
Current Range : 4~20mA

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



Current Range : -20~20mA

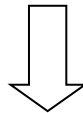
Current	-20.0mA	-10.0mA	0mA	+10.0mA	+20.mA
Data(Hex)	LED No.		LED Function / Description	LED Color	H3FFF
	0		INPUT Channel 0	Green	
	1		INPUT Channel 1	Green	
	2		INPUT Channel 2	Green	
	3		INPUT Channel 3	Green	
	HC000	HE000	H0000	H1FFF	



4.3. Mapping Data into the Image Table

- **Input Module Data**

Analog Input Ch0
Analog Input Ch1
Analog Input Ch2
Analog Input Ch3



- **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							

Specification

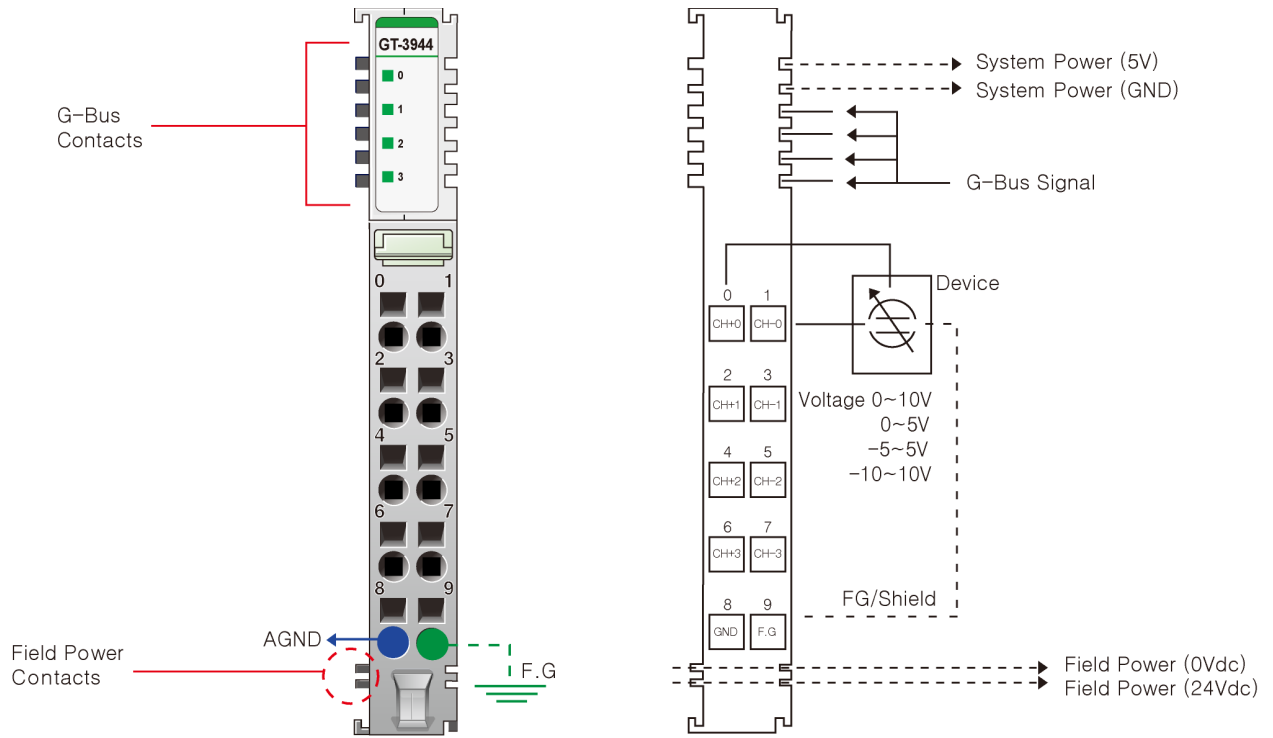
5. GT-3944 (4 Channels, Differential Voltage Input, 0~10V / 0~5V / -10~10V / -5~5V, 16bits)

5.1. GT-3944 Specification

Items	Specification
Input Specification	
Inputs Per Module	4 Channels Differential, Non-isolated Between Channels
Indicators	4 Green Input Status LEDs
Resolution in Ranges	16bit(Include Sign) 15 bits : 0.31mV/Bit(0~10V) 15 bits : 0.15mV/Bit(0~5V) 15bit(Include Sign) 15 bits : 0.61mV/Bit(-10~10V) 15 bits : 0.31mV/Bit(-5~5V)
Input Range	0~10Vdc, 0~5Vdc, -10~10Vdc, -5~5Vdc
Data Format	16bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ±0.3% Full Scale @ -40°C, 60°C
Input Impedance	667kΩ
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)
Conversion Time	1msec / All channel (≤ 0.25ms per channel)
Calibration	Not Required
Common Type	1 Common, Field Power 0V is Common(AGND)
General Specification	
Power Dissipation	Max. 30mA @ 5Vdc
Isolation	I/O to Logic : Photocoupler Isolation Field power : Non-Isolation
Field Power	Supply Voltage : 24Vdc nominal Voltage Range : 18 ~ 32Vdc Power Dissipation : Max. 45mA@24Vdc
Wiring	I/O Cable Max. 2.0mm ² (AWG 14)
Weight	58g
Module Size	12mm x 99mm x 70mm
Environment Condition	Refer to 'Environment Specification'

Specification

GT-3944 Wiring Diagram



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

5.2. GT-3944 LED Indicator

5.2.1. LED Indicator



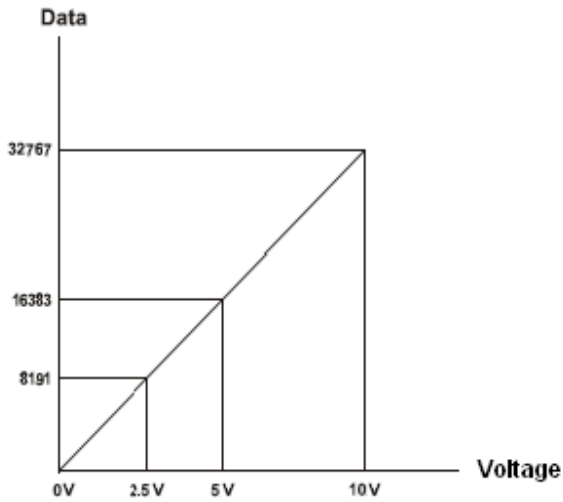
5.2.2. Channel Status LED

Status	LED	To indicate
Normal Operation	[LED Off < 0.5% (Maximum Input Value)] - Channel OFF [LED On > 0.5% (Maximum Input Value)] - Channel Green	Normal Operation
Field Power Error	All Channel Repeat the Green and OFF	Field Power is unconnected

Data Value / Voltage

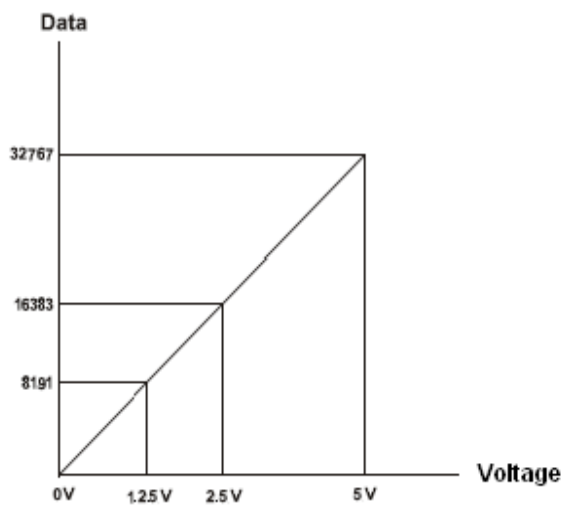
Voltage Range : 0~10V

Voltage	0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



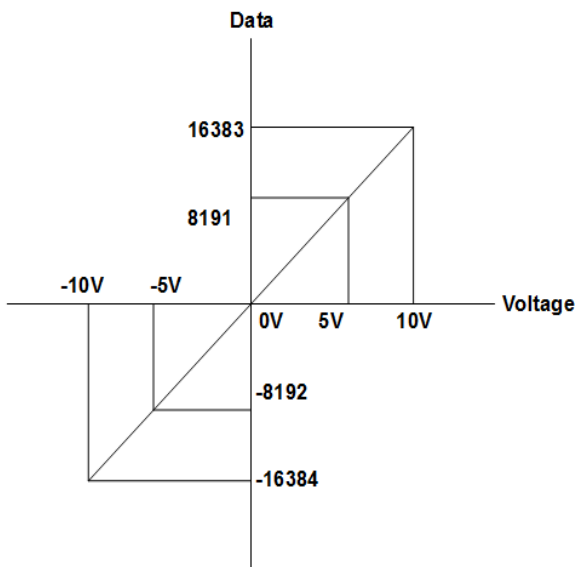
Voltage Range : 0~5V

Current	0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



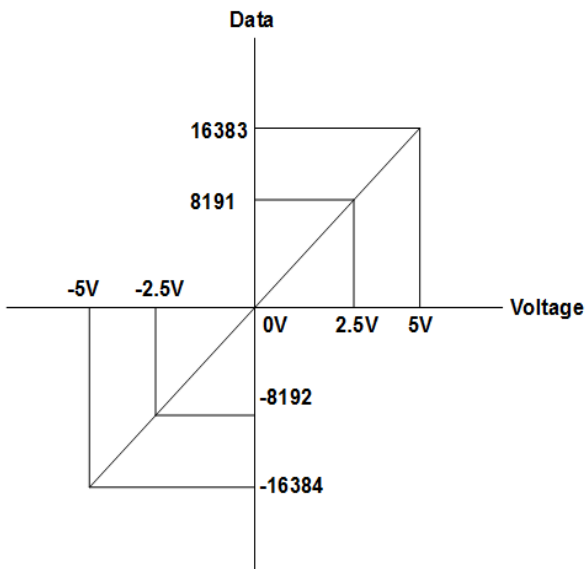
Voltage Range : -10~10V

Current	-10V	-5V	0V	5.0V	10.0V
Data(Hex)	HC000	HE000	H0000	H1FFF	H3FFF



Voltage Range : -5~5V

Current	-5V	-2.5V	0V	2.5V	5.0V
Data(Hex)	HC000	HE000	H0000	H1FFF	H3FFF

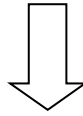


Specification

5.3. Mapping Data into the Image Table

- **Input Module Data**

Analog Input Ch0
Analog Input Ch1
Analog Input Ch2
Analog Input Ch3



- **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							

Input Range Setting & Conversion Time Setting

5.4. GT-3914, GT-3934

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Ch#0 Command(H00 : 0~20mA, H01 : 4~20mA, H02 : -20~20mA)							
1	Ch#1 Command(H00 : 0~20mA, H01 : 4~20mA, H02 : -20~20mA)							
2	Ch#2 Command(H00 : 0~20mA, H01 : 4~20mA, H02 : -20~20mA)							
3	Ch#3 Command(H00 : 0~20mA, H01 : 4~20mA, H02 : -20~20mA)							
4	Filter Time(H00 : Default Filter(=20), H01 : Fastest ~ H62 : Slowest)							
5	Reserve							

* ID_PARAMETER (6Byte)

5.5. GT-3924, GT-3944

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Ch#0 Command(H00 : 0~10V, H01 : 0~5V, H02 : -10~10V, H03 : -5~5V)							
1	Ch#1 Command(H00 : 0~10V, H01 : 0~5V, H02 : -10~10V, H03 : -5~5V)							
2	Ch#2 Command(H00 : 0~10V, H01 : 0~5V, H02 : -10~10V, H03 : -5~5V)							
3	Ch#3 Command(H00 : 0~10V, H01 : 0~5V, H02 : -10~10V, H03 : -5~5V)							
4	Filter Time(H00 : Default Filter(=20), H01 : Fastest ~ H62 : Slowest)							
5	Reserve							

* ID_PARAMETER (6Byte)