

# Analog Input Module

## GT-34xx User Manual



DOCUMENT CHANGE SUMMARY				
REV	PAGE	REMARKS	DATE	EDITOR
1.00	New Document		18/07/31	JY,Hyun
1.01		Add Product GT-3424, GT-3464, GT-3468, GT-342F, GT-347F	19/01/16	JY,Hyun
1.02		Add Product GT-346F, GT-349F	20/07/15	JY,Hyun

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## 1. Important Notes

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls describes some important differences between solid state equipment and hard-wired electromechanical devices.

Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will CREVIS be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, CREVIS cannot assume responsibility or liability for actual use based on the examples and diagrams.

### **Warning!**

**If you don't follow the directions, it could cause a personal injury, damage to the equipment or explosion**

Do not assemble the products and wire with power applied to the system. Else it may cause an electric arc, which can result into unexpected and potentially dangerous action by field devices. Arching is explosion risk in hazardous locations. Be sure that the area is non-hazardous or remove system power appropriately before assembling or wiring the modules.

Do not touch any terminal blocks or IO modules when system is running. Else it may cause the unit to an electric shock or malfunction.

Keep away from the strange metallic materials not related to the unit and wiring works should be controlled by the electric expert engineer. Else it may cause the unit to a fire, electric shock or malfunction

### **Caution!**

**If you disobey the instructions, there may be possibility of personal injury, damage to equipment or explosion. Please follow below Instructions.**

Check the rated voltage and terminal array before wiring. Avoid the circumstances over 50°C of temperature. Avoid placing it directly in the sunlight.

Avoid the place under circumstances over 85% of humidity.

Do not place Modules near by the inflammable material. Else it may cause a fire.



Do not permit any vibration approaching it directly.

Go through module specification carefully, ensure inputs, output connections are made with the specifications. Use standard cables for wiring.


Use Product under pollution degree 2 environment.

## 1.1. Safety Instruction

### 1.1.1. Symbols

<p><b>DANGER</b></p> 	<p>Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death property damage, or economic loss</p>
<p><b>IMPORTANT</b></p>	<p>Identifies information that is critical for successful application and understanding of the product</p>
<p><b>ATTENTION</b></p> 	<p>Identifies information about practices or circumstances that can lead to personal injury, property damage, or economic loss.          Attentions help you to identify a hazard, avoid a hazard, and recognize the consequences</p>

### 1.1.2. Safety Notes

<p><b>DANGER</b></p> 	<p>The modules are equipped with electronic components that may be destroyed by electrostatic discharge. When handling the modules, ensure that the environment (persons, workplace and packing) is well grounded. Avoid touching conductive components, G-BUS Pin.</p>
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### 1.1.3. Certification

c-UL-us UL Listed Industrial Control Equipment, certified for U.S. and Canada

See UL File E235505

CE Certificate

EN 61000-6-2; Industrial Immunity

EN 61000-6-4; Industrial Emissions

Reach, RoHS (EU, CHINA)

## 2. Analog Input Module List

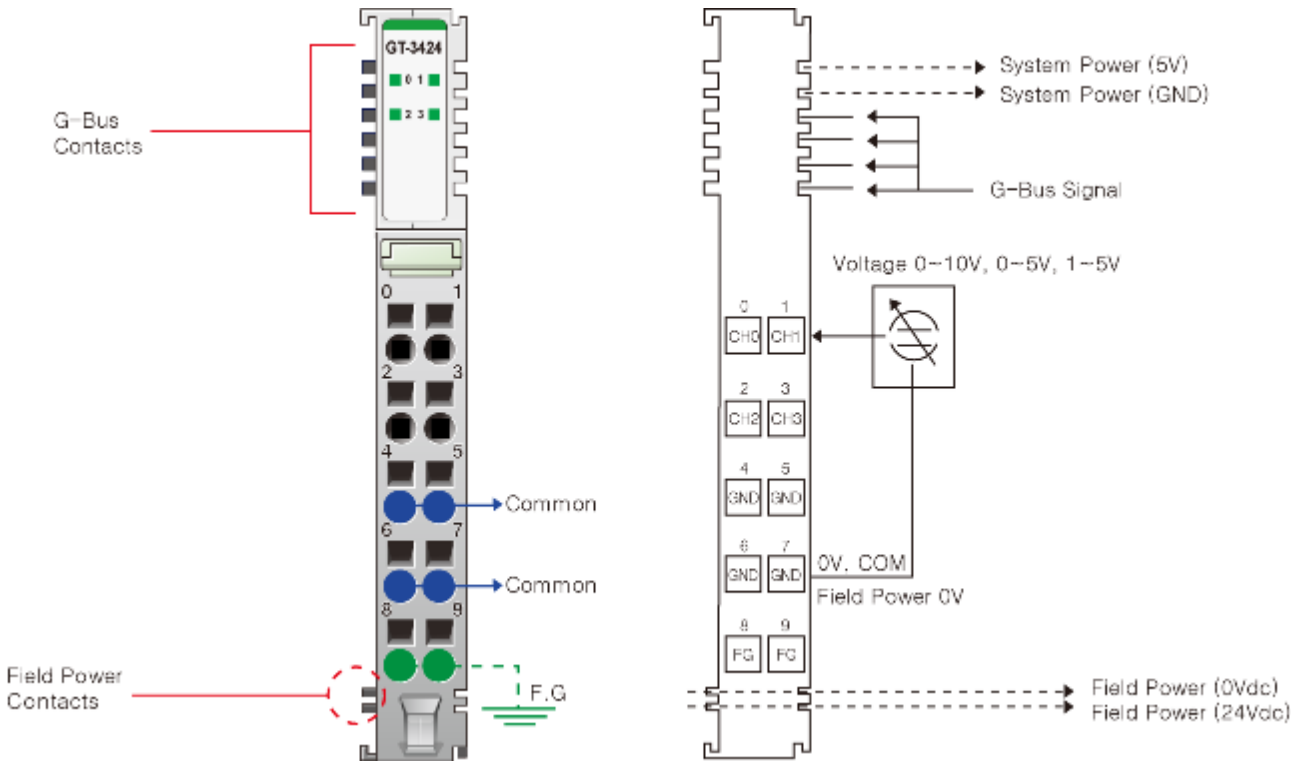
GT-Number	Description	ID
GT-3424	Analog Input, 4 Channels, 0~10, 0~5, 1~5 Vdc, 12Bits, 10RTB	3424
GT-3464	Analog Input, 4 Channels, 0~10, 0~5, 1~5 Vdc, 16Bits, 10RTB	3464
GT-3428	Analog Input, 8 Channels, 0~10, 0~5, 1~5 Vdc, 12Bits, 10RTB	3428
GT-3468	Analog Input, 8 Channels, 0~10, 0~5, 1~5 Vdc, 16Bits, 10RTB	3468
GT-342F	Analog Input, 16 Channels, 0~10, 0~5, 1~5 Vdc, 12Bits, 20P Connector	342F
GT-346F	Analog Input, 16 Channels, 0~10, 0~5, 1~5Vdc, 16Bits, 20P Connector	346F
GT-347F	Analog Input, 16 Channels, 0~10, 0~5, 1~5 Vdc, 12Bits, 18RTB	347F
GT-349F	Analog Input, 16 Channels, 0~10, 0~5, 1~5Vdc, 16Bits, 18RTB	349F



### 3. Specification

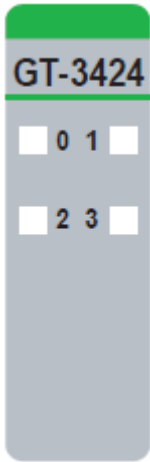
#### 3.1. GT-3424

##### 3.1.1. 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 Common(AGND)	Input Channel Common(AGND)	5
6	Input Channel Common(AGND)	Input Channel Common(AGND)	7
8	F.G	F.G	9

### 3.1.2. 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

### 3.1.3. 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

### 3.1.4. Environment Specification

<b>Environmental Specification</b>	
Operation Temperature	-40°C ~ 70°C
UL Temperature	-20°C ~ 60°C
Storage Temperature	-40°C ~ 85°C
Relative Humidity	5% ~ 90% Non-condensing
Mounting	DIN Rail
<b>General Specification</b>	
Shock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 DNVGL-CG-0039 : Vibration Class B, 4g
Industrial Emissions	EN61000-6-4/All : 2011
Industrial Immunity	EN61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL, FCC

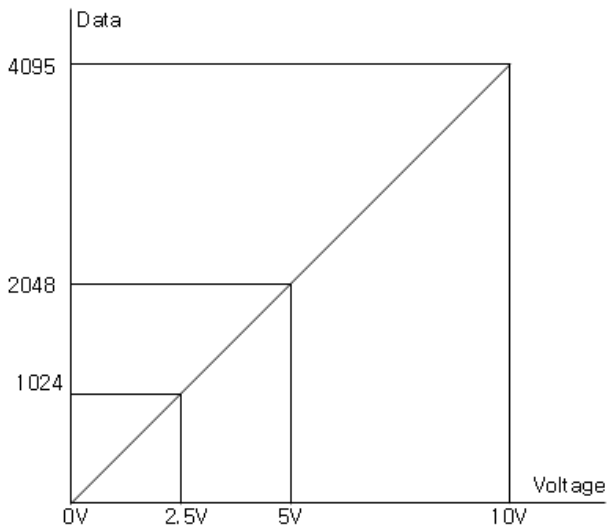
### 3.1.5. Specification

Items	Specification
<b>Input Specification</b>	
Inputs Per Module	4 Channels Single Ended, Non-Isolated Between Channel
Indicators(Logic side)	4 Green Input Status
Resolution in Ranges	12 bits : 2.44mV/Bit(0~10V), 1.22mV/Bit(0~5V) 0.977mV/Bit(1~5V)
Input Current Ranges	0~10Vdc, 0~5Vdc, 1~5Vdc
Data Format	16 Bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ambient ±0.3% Full Scale @ -40°C, 70°C
Input Impedance	500kΩ
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	0.4msec / All Channels
Field Calibration	Not Required
Common Type	4 Common, Field Power 0V is Common(AGND)
<b>General Specification</b>	
Power Dissipation	Max. 25mA @ 5.0Vdc
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. 25mA @ 24Vdc
Wiring	I/O Cable Max. 2.0mm <sup>2</sup> (AWG 14)
Torque	0.8Nm(7lb-in)
Weight	58g
Module Size	12mm x 99mm x 70mm
<b>Environment Condition</b>	<b>Refer to 'Environment Specification'</b>

### 3.1.6. Data Value / Voltage

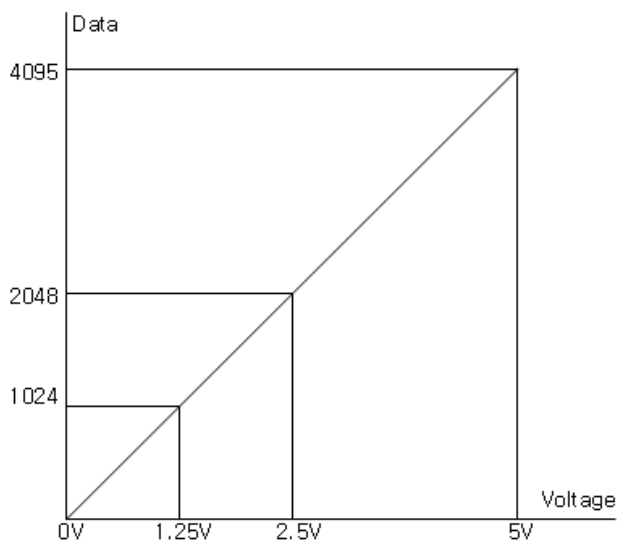
#### Voltage Range : 0~10Vdc

Voltage	0.0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



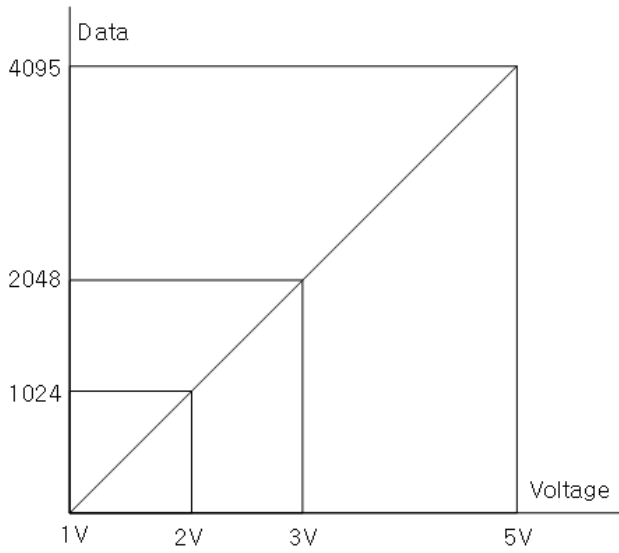
#### Voltage Range : 0~5Vdc

Voltage	0.0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



**Voltage Range : 1~5Vdc**

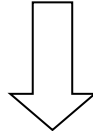
Voltage	1.0V	2.0V	3.0V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



### 3.1.7. 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							

### 3.1.8. Parameter Data

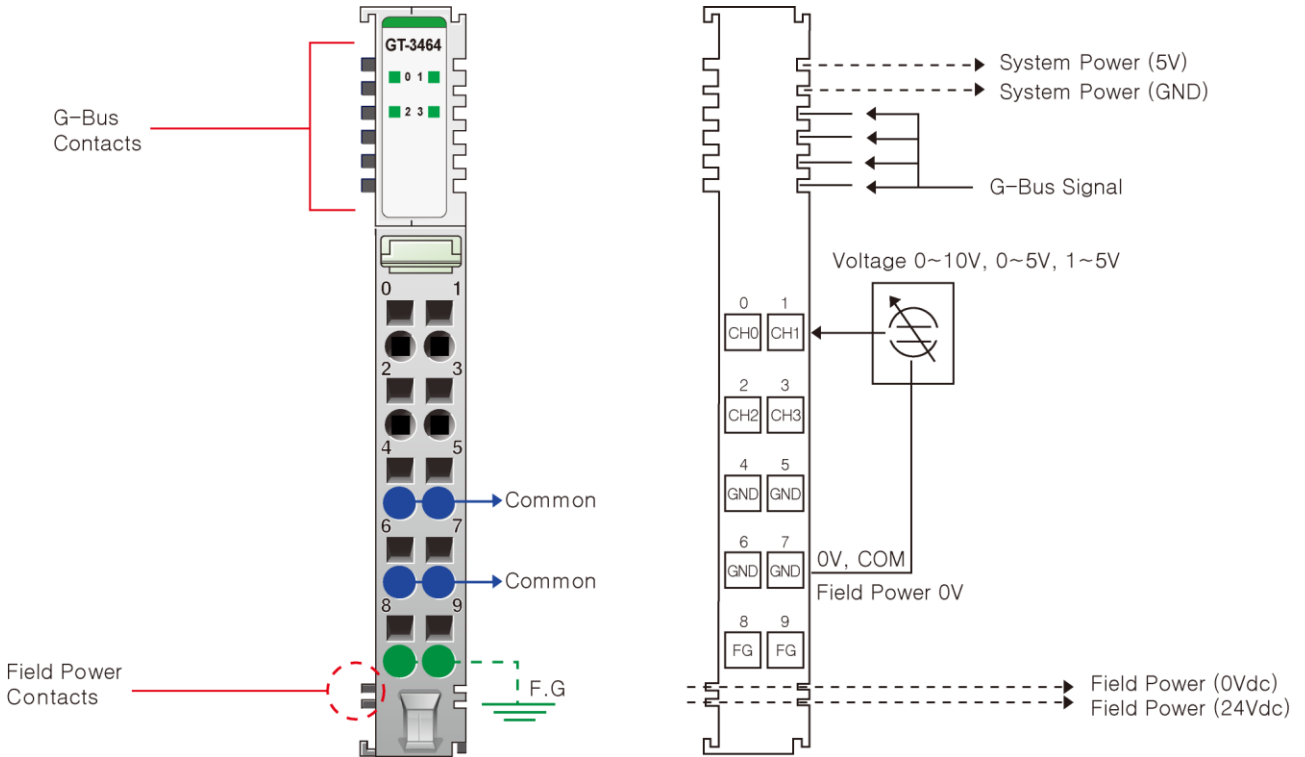
#### - Valid Parameter length : 6 Bytes

#### - Parameter Data

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Voltage Range for Channel 0 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 1	Voltage Range for Channel 1 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 2	Voltage Range for Channel 2 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 3	Voltage Range for Channel 3 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 4	Filter Time ( H00: Default Filter(20) / H01: Fastest ~ / H3E : Slowest)							
Byte 5	Not used(=00)							

### 3.2. GT-3464

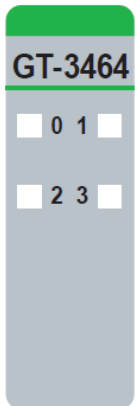
#### 3.2.1. Wiring Diagram



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 Common(AGND)	Input Channel Common(AGND)	5
6	Input Channel Common(AGND)	Input Channel Common(AGND)	7
8	F.G	F.G	9



### 3.2.2. 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

### 3.2.3. 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

### 3.2.4. Environment Specification

<b>Environmental Specification</b>	
Operation Temperature	-40°C ~ 70°C
UL Temperature	-20°C ~ 60°C
Storage Temperature	-40°C ~ 85°C
Relative Humidity	5% ~ 90% Non-condensing
Mounting	DIN Rail
<b>General Specification</b>	
Shock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 DNVGL-CG-0039 : Vibration Class B, 4g
Industrial Emissions	EN61000-6-4/All : 2011
Industrial Immunity	EN61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL, FCC

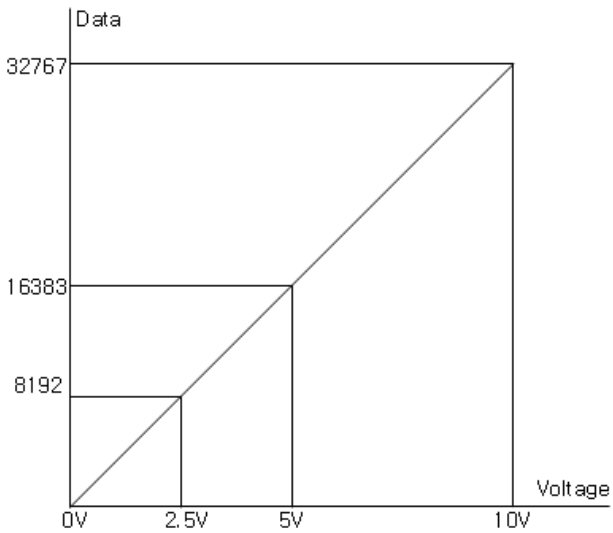
### 3.2.5. Specification

Items	Specification
<b>Input Specification</b>	
Inputs Per Module	4 Channels Single Ended, Non-Isolated Between Channel
Indicators(Logic side)	4 Green Input Status
Resolution in Ranges	16 bits (Include Sign) 15 bits : 0.31mV/bit(0~10V), 0.15mV/bit(0~5V), 0.12mV/bit(1~5V)
Input Current Ranges	0~10Vdc, 0~5Vdc, 1~5Vdc
Data Format	16 Bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ambient ±0.3% Full Scale @ -40°C, 70°C
Input Impedance	500kΩ
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	0.4msec / All Channels
Field Calibration	Not Required
Common Type	4 Common, Field Power 0V is Common(AGND)
<b>General Specification</b>	
Power Dissipation	Max. 25mA @ 5.0Vdc
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. 25mA @ 24Vdc
Wiring	I/O Cable Max. 2.0mm <sup>2</sup> (AWG 14)
Torque	0.8Nm(7lb-in)
Weight	58g
Module Size	12mm x 99mm x 70mm
<b>Environment Condition</b>	<b>Refer to 'Environment Specification'</b>

### 3.2.6. Data Value / Voltage

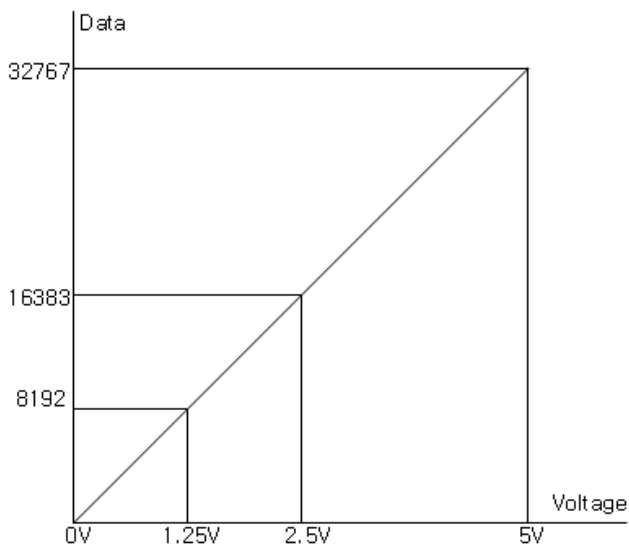
**Voltage Range : 0~10Vdc**

Voltage	0.0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



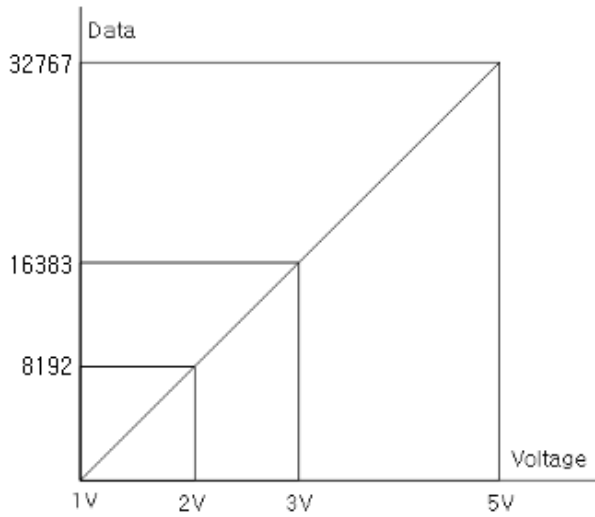
**Voltage Range : 0~5Vdc**

Voltage	0.0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



**Voltage Range : 1~5Vdc**

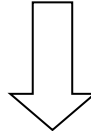
Voltage	1.0V	2.0V	3.0V	5.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



### 3.2.7. 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							

### 3.2.8. Parameter Data

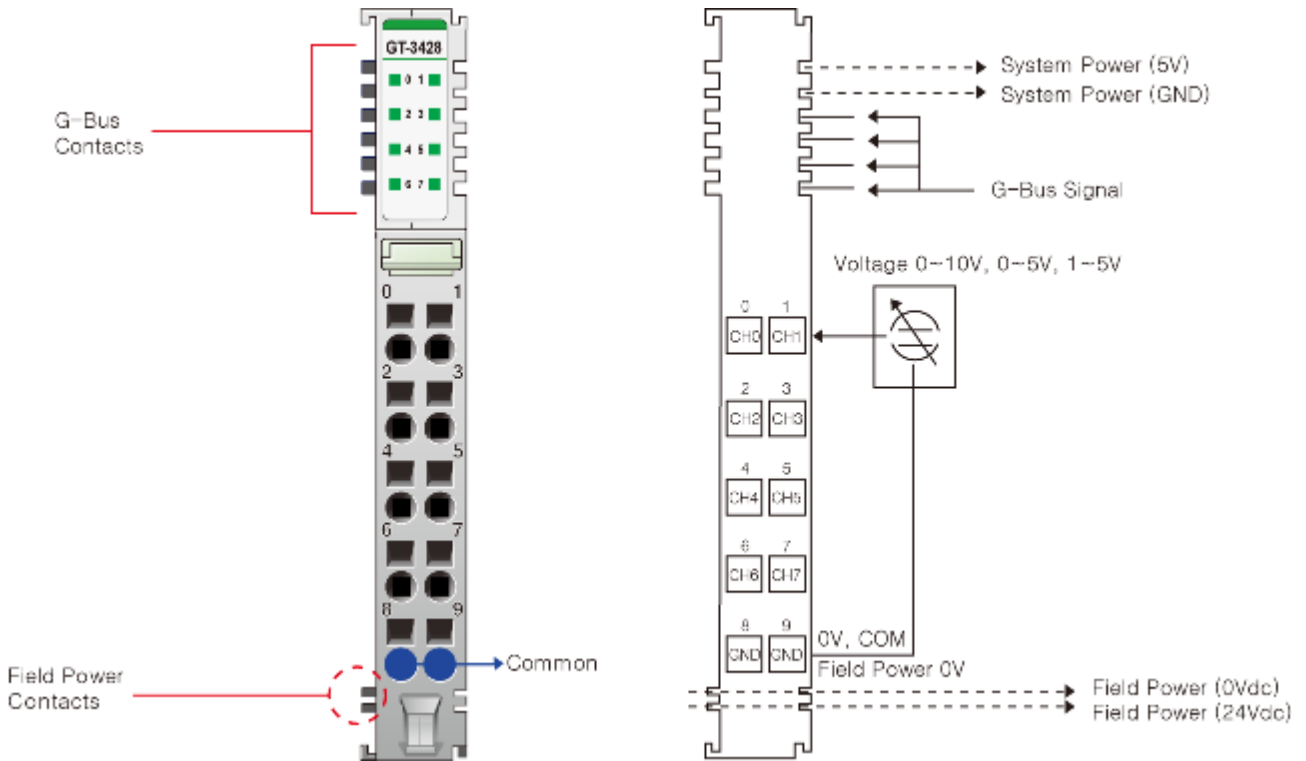
**- Valid Parameter length : 6 Bytes**

**- Parameter Data**

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Voltage Range for Channel 0 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 1	Voltage Range for Channel 1 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 2	Voltage Range for Channel 2 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 3	Voltage Range for Channel 3 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 4	Filter Time ( H00: Default Filter(20) / H01: Fastest ~ / H3E : Slowest)							
Byte 5	Not used(=00)							

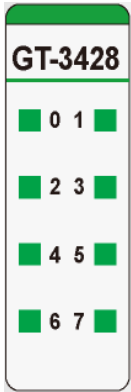
### 3.3. GT-3428

#### 3.3.1. 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

### 3.3.2. 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

### 3.3.3. 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



### 3.3.4. Environment Specification

<b>Environmental Specification</b>	
Operation Temperature	-40°C ~ 70°C
UL Temperature	-20°C ~ 60°C
Storage Temperature	-40°C ~ 85°C
Relative Humidity	5% ~ 90% Non-condensing
Mounting	DIN Rail
<b>General Specification</b>	
Shock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 DNVGL-CG-0039 : Vibration Class B, 4g
Industrial Emissions	EN61000-6-4/All : 2011
Industrial Immunity	EN61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL, FCC

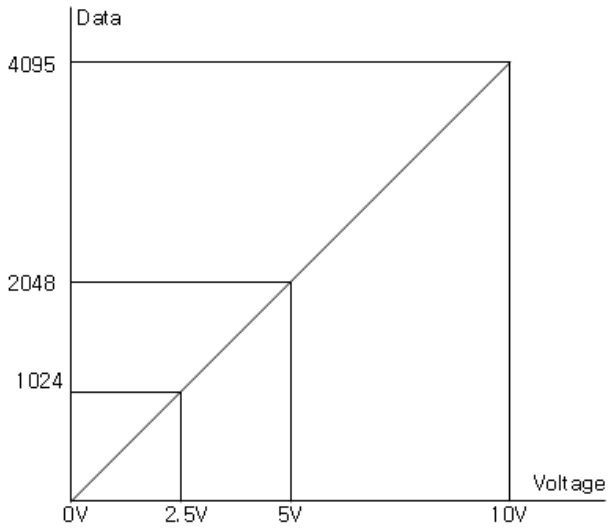
### 3.3.5. Specification

Items	Specification
<b>Input Specification</b>	
Inputs Per Module	8 Channels Single Ended, Non-Isolated Between Channel
Indicators(Logic side)	8 Green Input Status
Resolution in Ranges	12 bits : 2.44mV/Bit(0~10V), 1.22mV/Bit(0~5V) 0.98mV/Bit(1~5V)
Input Current Ranges	0~10Vdc, 0~5Vdc, 1~5Vdc
Data Format	16 Bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ambient ±0.3% Full Scale @ -40°C, 70°C
Input Impedance	500kΩ
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	0.5msec / All Channels
Field Calibration	Not Required
Common Type	2 Common, Field Power 0V is Common(AGND)
<b>General Specification</b>	
Power Dissipation	Max. 30mA @ 5.0Vdc
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. 30mA @ 24Vdc
Wiring	I/O Cable Max. 2.0mm <sup>2</sup> (AWG 14)
Torque	0.8Nm(7lb-in)
Weight	58g
Module Size	12mm x 99mm x 70mm
<b>Environment Condition</b>	<b>Refer to 'Environment Specification'</b>

### 3.3.6. Data Value / Voltage

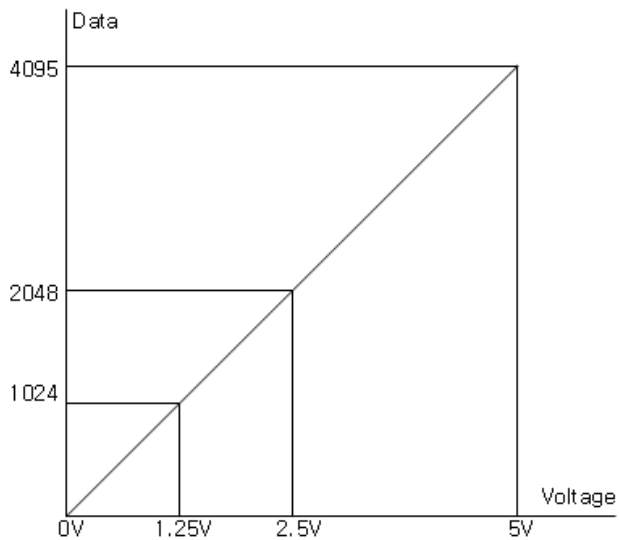
#### Voltage Range : 0~10Vdc

Voltage	0.0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



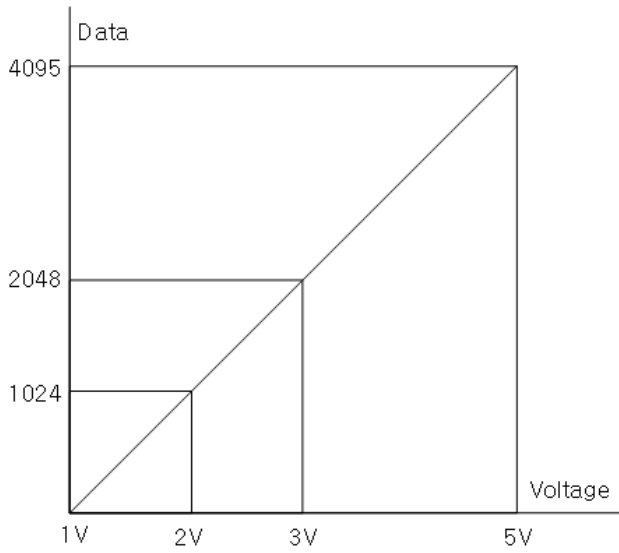
#### Voltage Range : 0~5Vdc

Voltage	0.0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



**Voltage Range : 1~5Vdc**

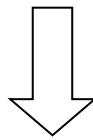
Voltage	1.0V	2.0V	3.0V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



### 3.3.7. 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							

### 3.3.8. Parameter Data

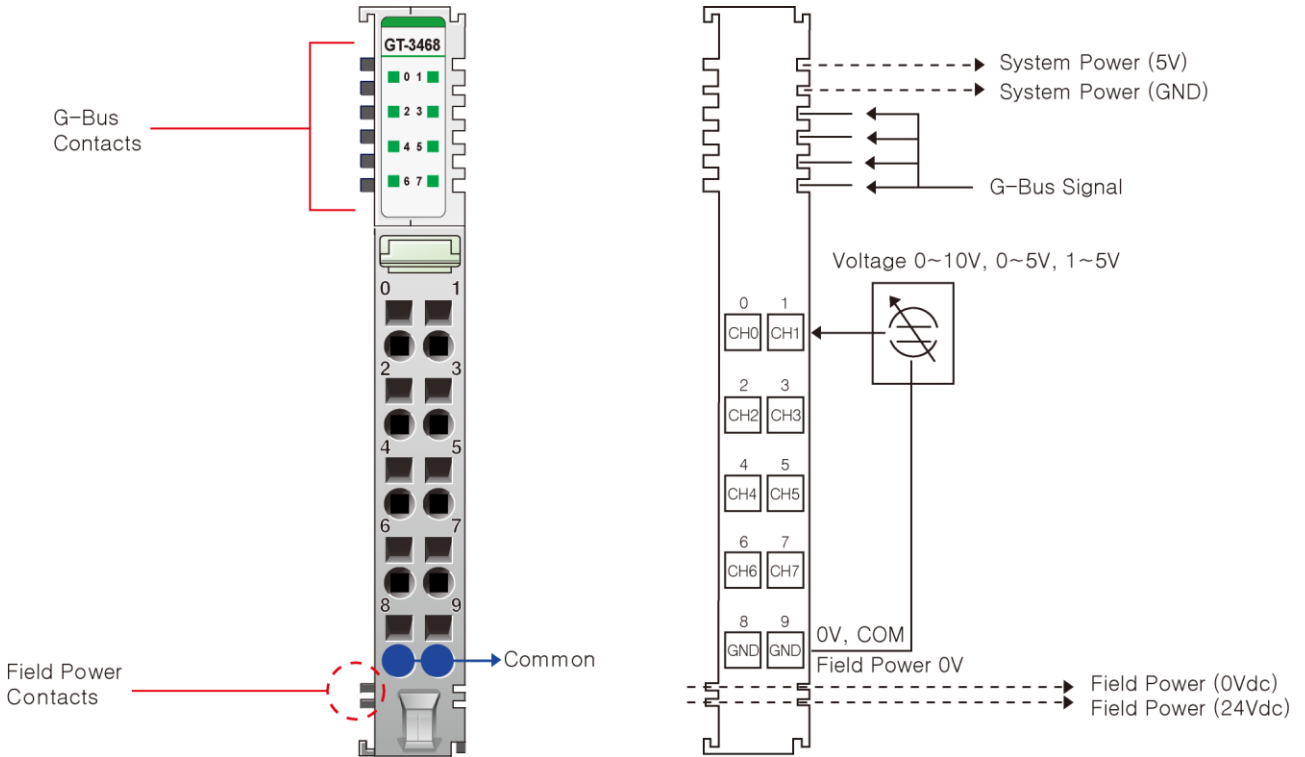
- . Valid Parameter length : 10 Bytes

- . Parameter Data

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Voltage Range for Channel 0 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 1	Voltage Range for Channel 1 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 2	Voltage Range for Channel 2 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 3	Voltage Range for Channel 3 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 4	Voltage Range for Channel 4 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 5	Voltage Range for Channel 5 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 6	Voltage Range for Channel 6 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 7	Voltage Range for Channel 7 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 8	Filter Time ( H00: Default Filter(20) / H01: Fastest ~ / H3E : Slowest)							
Byte 9	Not used(=00)							

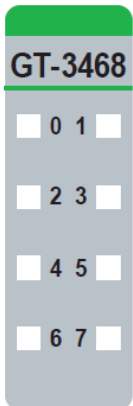
### 3.4. GT-3464

#### 3.4.1. 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

### 3.4.2. 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

### 3.4.3. 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



### 3.4.4. Environment Specification

<b>Environmental Specification</b>	
Operation Temperature	-40°C ~ 70°C
UL Temperature	-20°C ~ 60°C
Storage Temperature	-40°C ~ 85°C
Relative Humidity	5% ~ 90% Non-condensing
Mounting	DIN Rail
<b>General Specification</b>	
Shock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 DNVGL-CG-0039 : Vibration Class B, 4g
Industrial Emissions	EN61000-6-4/All : 2011
Industrial Immunity	EN61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL, FCC

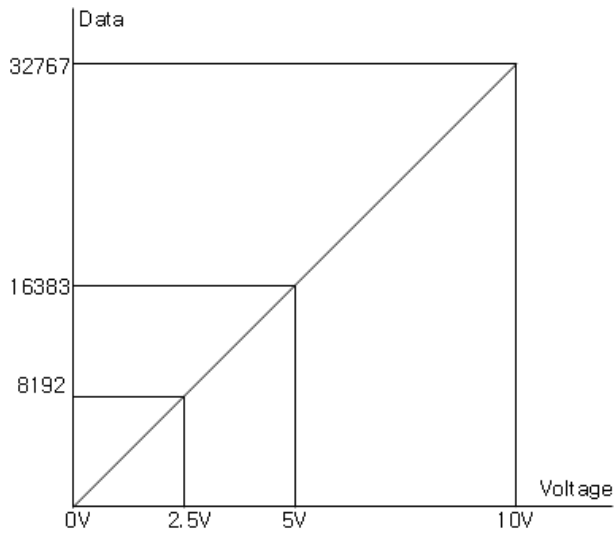
### 3.4.5. Specification

Items	Specification
<b>Input Specification</b>	
Inputs Per Module	8 Channels Single Ended, Non-Isolated Between Channel
Indicators(Logic side)	8 Green Input Status
Resolution in Ranges	16 bits (Include Sign) 15 bits : 0.31mV/bit(0~10V), 0.15mV/bit(0~5V), 0.12mV/bit(1~5V)
Input Current Ranges	0~10Vdc, 0~5Vdc, 1~5Vdc
Data Format	16 Bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ambient ±0.3% Full Scale @ -40°C, 70°C
Input Impedance	500kΩ
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	0.4msec / All Channels
Field Calibration	Not Required
Common Type	2 Common, Field Power 0V is Common(AGND)
<b>General Specification</b>	
Power Dissipation	Max. 30mA @ 5.0Vdc
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. 30mA @ 24Vdc
Wiring	I/O Cable Max. 2.0mm <sup>2</sup> (AWG 14)
Torque	0.8Nm(7lb-in)
Weight	58g
Module Size	12mm x 99mm x 70mm
<b>Environment Condition</b>	<b>Refer to 'Environment Specification'</b>

### 3.4.6. Data Value / Voltage

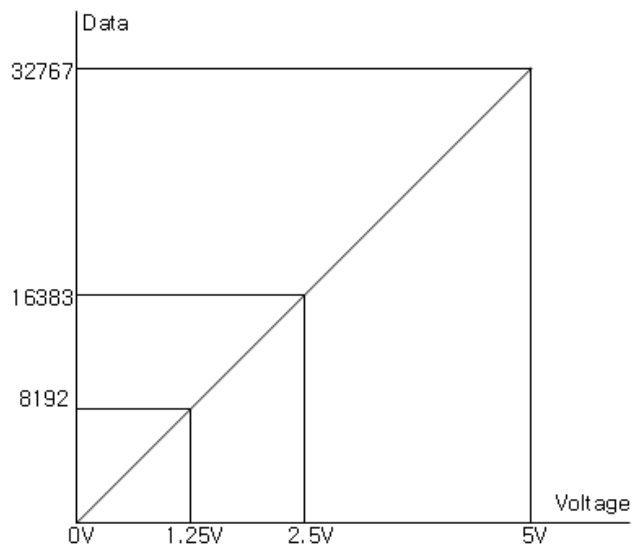
**Voltage Range : 0~10Vdc**

Voltage	0.0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



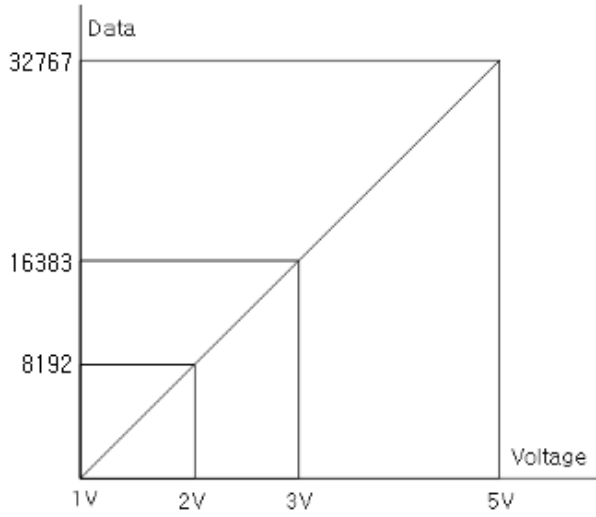
**Voltage Range : 0~5Vdc**

Voltage	0.0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



**Voltage Range : 1~5Vdc**

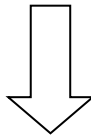
Voltage	1.0V	2.0V	3.0V	5.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



### 3.4.7. 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				
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				

### 3.4.8. Parameter Data

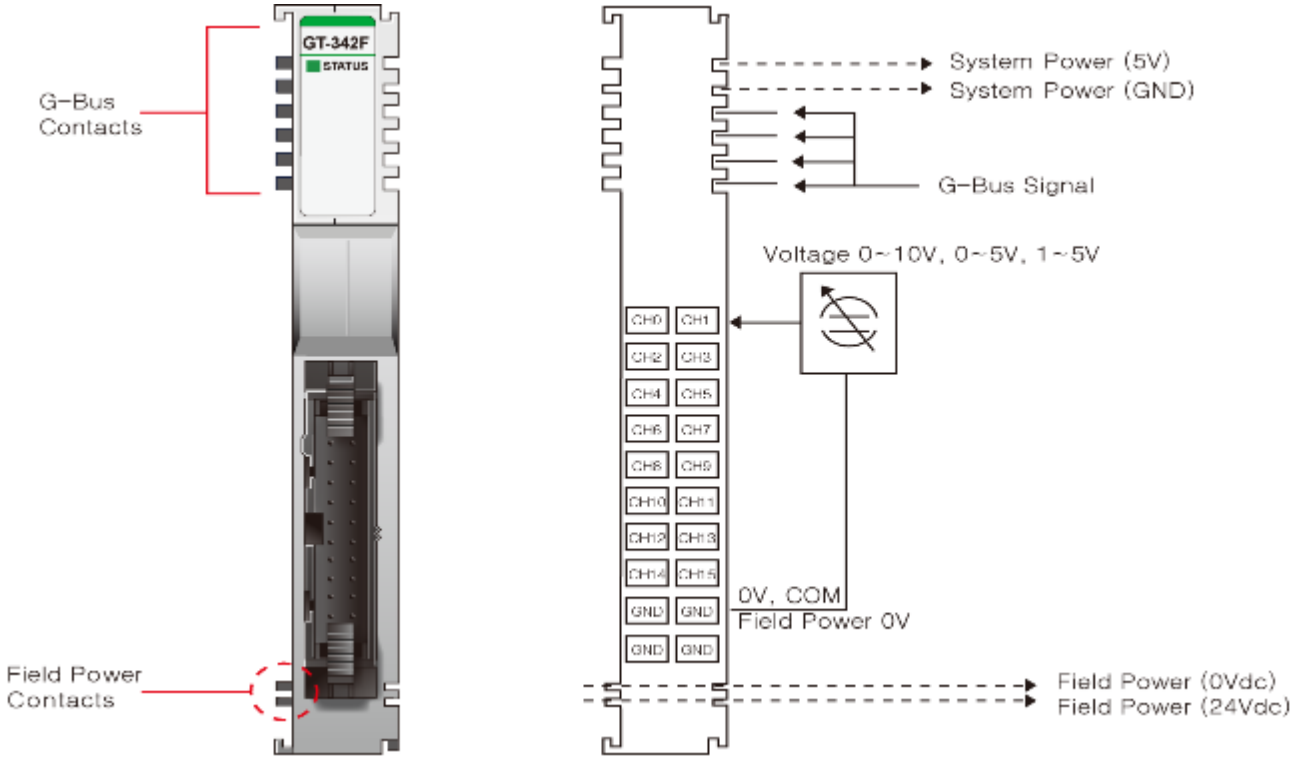
- . Valid Parameter length : 10 Bytes

- . Parameter Data

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Voltage Range for Channel 0 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 1	Voltage Range for Channel 1 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 2	Voltage Range for Channel 2 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 3	Voltage Range for Channel 3 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 4	Voltage Range for Channel 4 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 5	Voltage Range for Channel 5 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 6	Voltage Range for Channel 6 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 7	Voltage Range for Channel 7 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 8	Filter Time ( H00: Default Filter(20) / H01: Fastest ~ / H3E : Slowest)							
Byte 9	Not used(=00)							

### 3.5. GT-342F

#### 3.5.1. 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 8	Input Channel 9	9
10	Input Channel 10	Input Channel 11	11
12	Input Channel 12	Input Channel 13	13
14	Input Channel 14	Input Channel 15	15
16	Input Channel Common(AGND)	Input Channel Common(AGND)	17
18	Input Channel Common(AGND)	Input Channel Common(AGND)	19

### 3.5.2. LED Indicator



LED No.	LED Function / Description	LED Color
0	Status LED	Green

### 3.5.3. Channel Status LED

Status	LED	To indicate
G-Bus Status	Off Green	Disconnection connection
Field Power Error	All Channel Repeat the Green and Off	Field Power is unconnected



### 3.5.4. Environment Specification

<b>Environmental Specification</b>	
Operation 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
<b>General Specification</b>	
Shock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 DNVGL-CG-0039 : Vibration Class B, 4g
Industrial Emissions	EN61000-6-4/All : 2011
Industrial Immunity	EN61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL, FCC

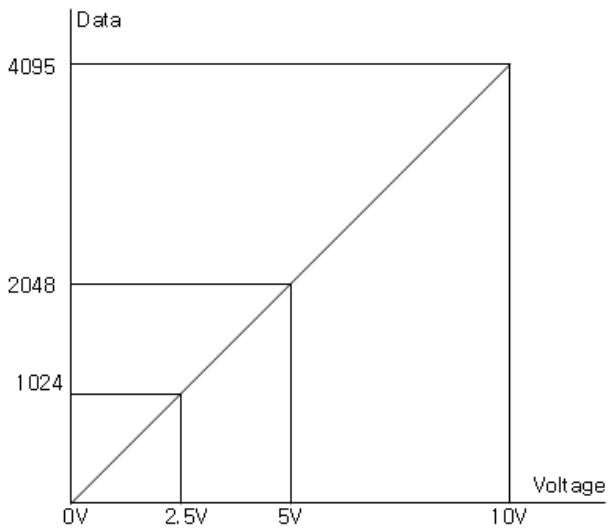
### 3.5.5. Specification

Items	Specification
<b>Input Specification</b>	
Inputs Per Module	16 Channels Single Ended, Non-Isolated Between Channel
Indicators(Logic side)	1 Green Input Status
Resolution in Ranges	12 bits : 2.44mV/Bit(0~10V), 1.22mV/Bit(0~5V) 0.98mV/Bit(1~5V)
Input Current Ranges	0~10Vdc, 0~5Vdc, 1~5Vdc
Data Format	16 Bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ambient ±0.3% Full Scale @ -40°C, 60°C
Input Impedance	500kΩ
Diagnostic	Diagnostic Field Power Off : LED Blinking
Conversion Time	1.0 msec / All Channel
Field Calibration	Not Required
Common Type	4 Common, Field Power 0V is Common(AGND)
<b>General Specification</b>	
Power Dissipation	Max. 30mA @ 5.0Vdc
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 : 18~26.4Vdc Power Dissipation : Max. 35mA @ 24Vdc
Wiring	Connector Type, up to AWG22 Module Connector : HIF3BA-20D-2.54DSA
Weight	58g
Module Size	12mm x 99mm x 70mm
<b>Environment Condition</b>	<b>Refer to 'Environment Specification'</b>

### 3.5.6. Data Value / Voltage

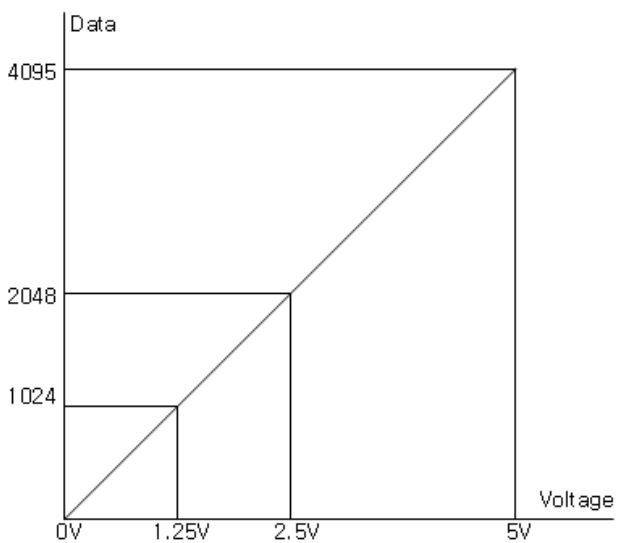
**Voltage Range : 0~10Vdc**

Voltage	0.0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



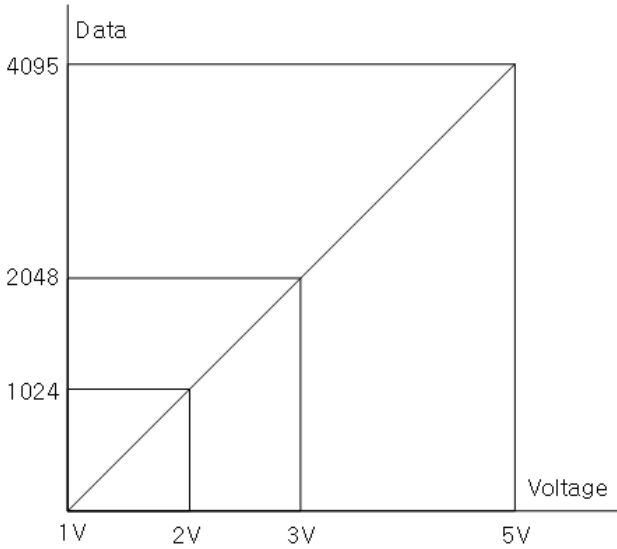
**Voltage Range : 0~5Vdc**

Voltage	0.0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



**Voltage Range : 1~5Vdc**

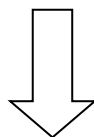
Voltage	1.0V	2.0V	3.0V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



**3.5.7. 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
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							
Byte 16	Analog Input Ch8 Low byte							
Byte 17	Analog Input Ch8 High byte							
Byte 18	Analog Input Ch9 Low byte							
Byte 19	Analog Input Ch9 High byte							
Byte 20	Analog Input Ch10 Low byte							
Byte 21	Analog Input Ch10 High byte							
Byte 22	Analog Input Ch11 Low byte							
Byte 23	Analog Input Ch11 High byte							
Byte 24	Analog Input Ch12 Low byte							
Byte 25	Analog Input Ch12 High byte							
Byte 26	Analog Input Ch13 Low byte							
Byte 27	Analog Input Ch13 High byte							
Byte 28	Analog Input Ch14 Low byte							
Byte 29	Analog Input Ch14 High byte							
Byte 30	Analog Input Ch15 Low byte							
Byte 31	Analog Input Ch15 High byte							

### 3.5.8. Parameter Data

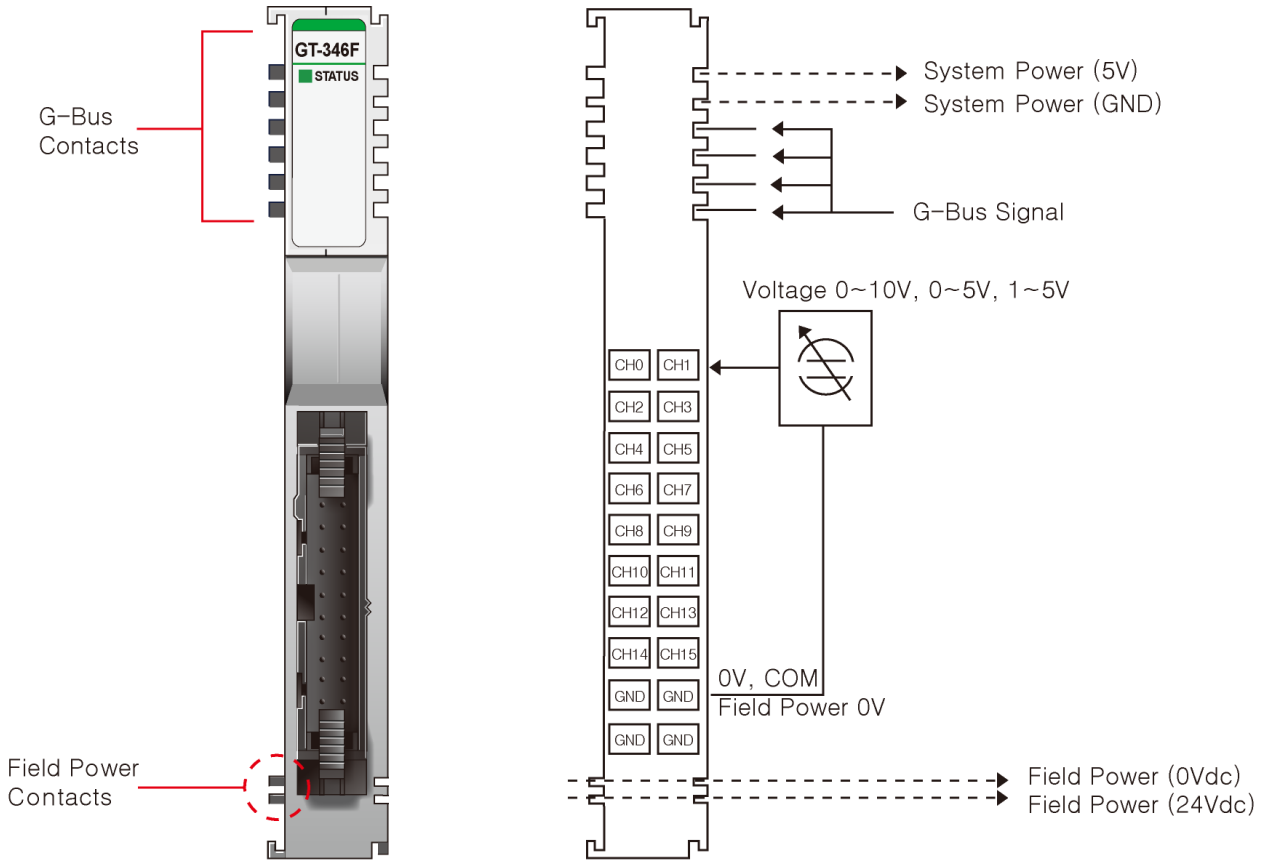
- . Valid Parameter length : 18 Bytes

- . Parameter Data

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Voltage Range for Channel 0 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 1	Voltage Range for Channel 1 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 2	Voltage Range for Channel 2 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 3	Voltage Range for Channel 3 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 4	Voltage Range for Channel 4 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 5	Voltage Range for Channel 5 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 6	Voltage Range for Channel 6 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 7	Voltage Range for Channel 7 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 8	Voltage Range for Channel 8 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 9	Voltage Range for Channel 9 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 10	Voltage Range for Channel 10 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 11	Voltage Range for Channel 11 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 12	Voltage Range for Channel 12 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 13	Voltage Range for Channel 13 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 14	Voltage Range for Channel 14 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 15	Voltage Range for Channel 15 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 16	Filter Time ( H00: Default Filter(20) / H01: Fastest ~ / H3E : Slowest)							
Byte 17	Not used(=00)							

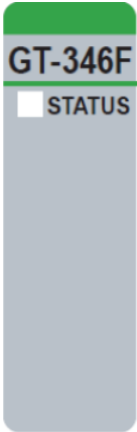
### 3.6. GT-346F

#### 3.6.1. 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 8	Input Channel 9	9
10	Input Channel 10	Input Channel 11	11
12	Input Channel 12	Input Channel 13	13
14	Input Channel 14	Input Channel 15	15
16	Input Channel Common(AGND)	Input Channel Common(AGND)	17
18	Input Channel Common(AGND)	Input Channel Common(AGND)	19

### 3.6.2. LED Indicator



LED No.	LED Function / Description	LED Color
0	Status LED	Green

### 3.6.3. Channel Status LED

Status	LED	To indicate
G-Bus Status	Off Green	Disconnection Connection
Field Power Error	All Channel Repeat the Green and Off	Field Power is unconnected



### 3.6.4. Environment Specification

<b>Environmental Specification</b>	
Operation 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
<b>General Specification</b>	
Shock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 DNVGL-CG-0039 : Vibration Class B, 4g
Industrial Emissions	EN61000-6-4/All : 2011
Industrial Immunity	EN61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL, FCC

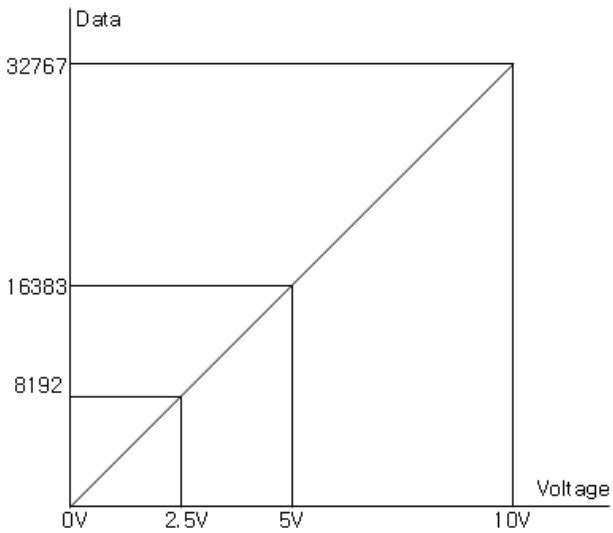
### 3.6.5. Specification

Items	Specification
<b>Input Specification</b>	
Inputs Per Module	16 Channels Single Ended, Non-Isolated Between Channel
Indicators(Logic side)	1 Green Input Status
Resolution in Ranges	16 bits (Include Sign) 15 bits : 0.31mV/bit(0~10V), 0.15mV/bit(0~5V), 0.12mV/bit(1~5V)
Input Current Ranges	0~10Vdc, 0~5Vdc, 1~5Vdc
Data Format	16 Bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ambient ±0.3% Full Scale @ -40°C, 70°C
Input Impedance	500kΩ
Diagnostic	Diagnostic Field Power Off : LED Blinking
Conversion Time	1.0 msec / All Channels
Field Calibration	Not Required
Common Type	4 Common, Field Power 0V is Common(AGND)
<b>General Specification</b>	
Power Dissipation	Max. 30mA @ 5.0Vdc
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 : 18~26.4Vdc Power Dissipation : Max. 30mA @ 24Vdc
Wiring	Connector Type, up to AWG22 Module Connector : HIF3BA-20D-2.54DSA
Weight	58g
Module Size	12mm x 99mm x 70mm
<b>Environment Condition</b>	<b>Refer to 'Environment Specification'</b>

### 3.6.6. Data Value / Voltage

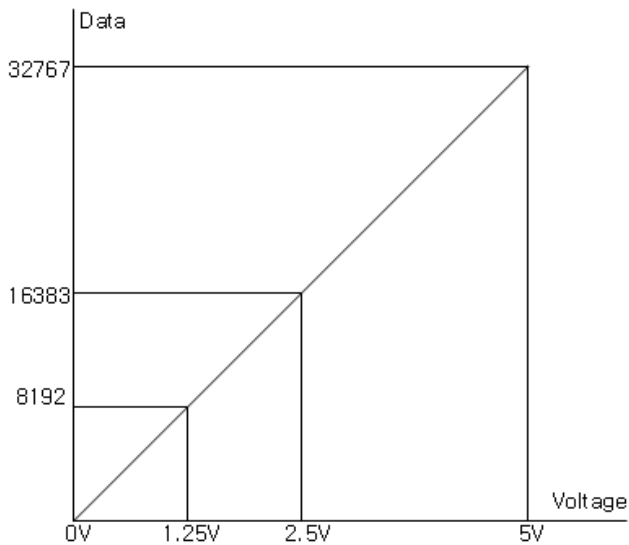
**Voltage Range : 0~10Vdc**

Voltage	0.0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



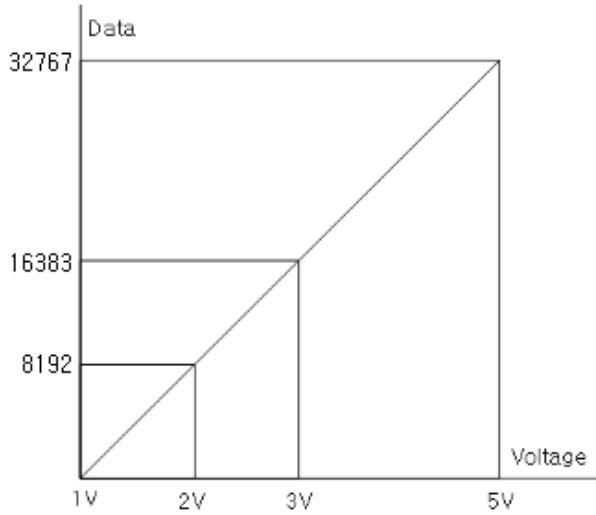
**Voltage Range : 0~5Vdc**

Voltage	0.0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



**Voltage Range : 1~5Vdc**

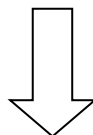
Voltage	1.0V	2.0V	3.0V	5.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



**3.6.7. 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
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
Byte 16								Analog Input Ch8 Low byte
Byte 17								Analog Input Ch8 High byte
Byte 18								Analog Input Ch9 Low byte
Byte 19								Analog Input Ch9 High byte
Byte 20								Analog Input Ch10 Low byte
Byte 21								Analog Input Ch10 High byte
Byte 22								Analog Input Ch11 Low byte
Byte 23								Analog Input Ch11 High byte
Byte 24								Analog Input Ch12 Low byte
Byte 25								Analog Input Ch12 High byte
Byte 26								Analog Input Ch13 Low byte
Byte 27								Analog Input Ch13 High byte
Byte 28								Analog Input Ch14 Low byte
Byte 29								Analog Input Ch14 High byte
Byte 30								Analog Input Ch15 Low byte
Byte 31								Analog Input Ch15 High byte

### 3.6.8. Parameter Data

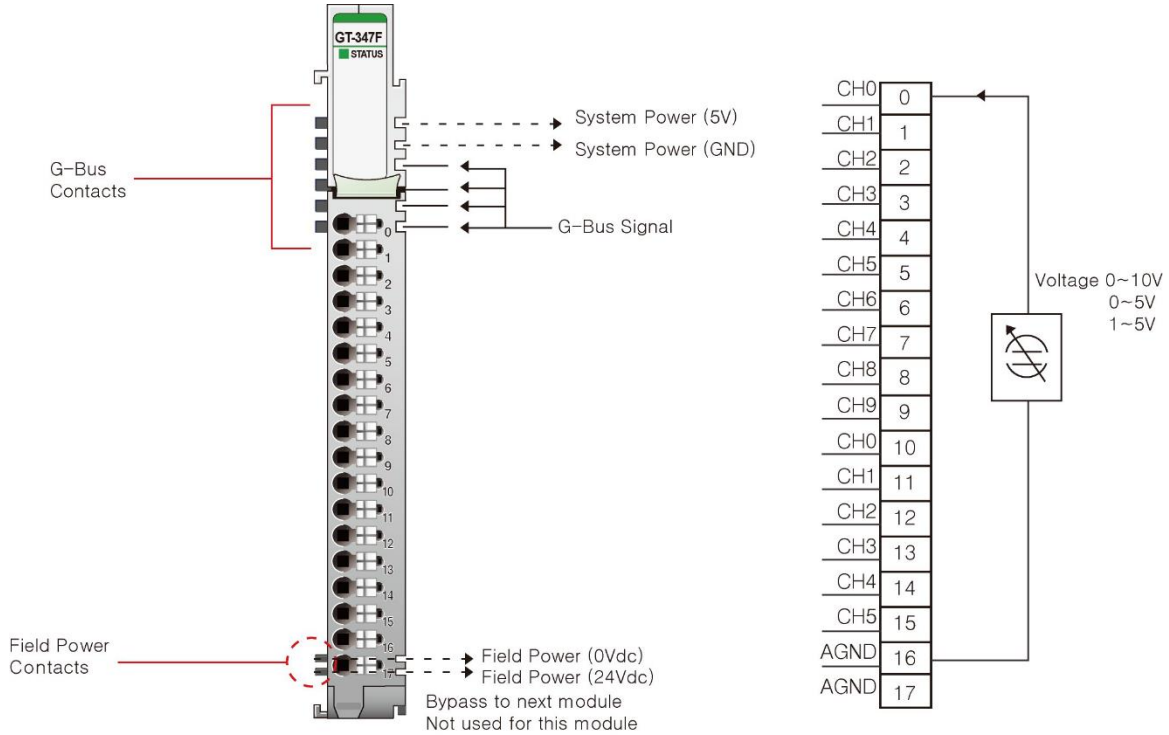
-. Valid Parameter length : 18 Bytes

-. Parameter Data

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Voltage Range for Channel 0 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 1	Voltage Range for Channel 1 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 2	Voltage Range for Channel 2 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 3	Voltage Range for Channel 3 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 4	Voltage Range for Channel 4 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 5	Voltage Range for Channel 5 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 6	Voltage Range for Channel 6 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 7	Voltage Range for Channel 7 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 8	Voltage Range for Channel 8 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 9	Voltage Range for Channel 9 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 10	Voltage Range for Channel 10 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 11	Voltage Range for Channel 11 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 12	Voltage Range for Channel 12 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 13	Voltage Range for Channel 13 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 14	Voltage Range for Channel 14 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 15	Voltage Range for Channel 15 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 16	Filter Time ( H00: Default Filter(20) / H01: Fastest ~ / H3E : Slowest)							
Byte 17	Not used(=00)							

### 3.7. GT-347F

#### 3.7.1. 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)

### 3.7.2. LED Indicator



LED No.	LED Function / Description	LED Color
0	Status LED	Green

### 3.7.3. Channel Status LED

Status	LED	To indicate
G-Bus Status	Off Green	Disconnection connection



### 3.7.4. Environment Specification

<b>Environmental Specification</b>	
Operation 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
<b>General Specification</b>	
Shock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 DNVGL-CG-0039 : Vibration Class B, 4g
Industrial Emissions	EN61000-6-4/All : 2011
Industrial Immunity	EN61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL, FCC

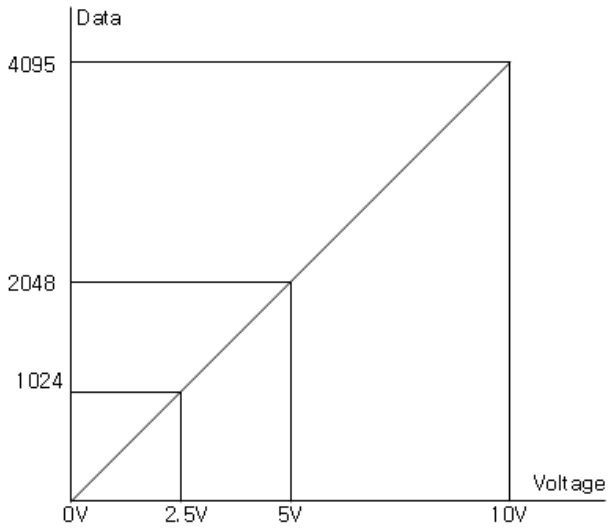
### 3.7.5. Specification

Items	Specification
<b>Input Specification</b>	
Inputs Per Module	16 Channels Single Ended, Non-Isolated Between Channel
Indicators(Logic side)	1 Green Input Status
Resolution in Ranges	12 bits : 2.44mV/Bit(0~10V), 1.22mV/Bit(0~5V) 0.98mV/Bit(1~5V)
Input Current Ranges	0~10Vdc, 0~5Vdc, 1~5Vdc
Data Format	16 Bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ambient ±0.3% Full Scale @ -40°C, 60°C
Input Impedance	500kΩ
Diagnostic	Diagnostic Field Power Off : LED Blinking
Conversion Time	1.0 msec / All Channel
Field Calibration	Not Required
<b>General Specification</b>	
Power Dissipation	Max. 210mA @ 5.0Vdc
Isolation	I/O to Logic : Photocoupler Isolation Field Power : Non-Isolation
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. 1.0mm <sup>2</sup> (AWG18)
Weight	63g
Module Size	12mm x 109mm x 70mm
<b>Environment Condition</b>	<b>Refer to 'Environment Specification'</b>

### 3.7.6. Data Value / Voltage

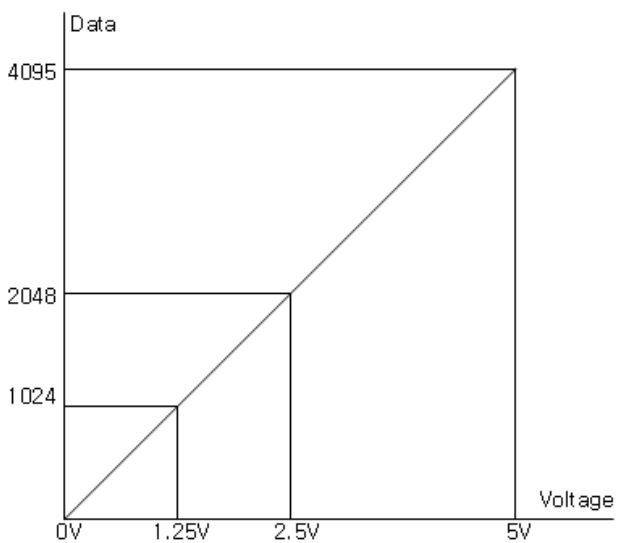
**Voltage Range : 0~10Vdc**

Voltage	0.0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



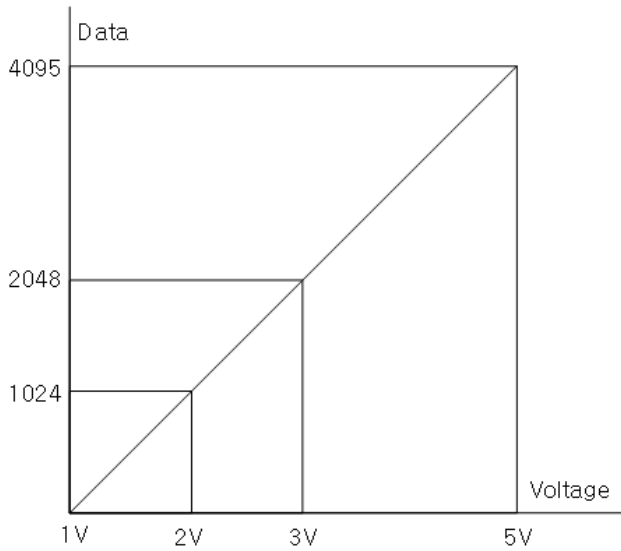
**Voltage Range : 0~5Vdc**

Voltage	0.0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



**Voltage Range : 1~5Vdc**

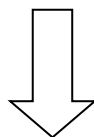
Voltage	1.0V	2.0V	3.0V	5.0V
Data(Hex)	H0000	H03FF	H07FF	H0FFF



**3.7.7. 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
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							
Byte 16	Analog Input Ch8 Low byte							
Byte 17	Analog Input Ch8 High byte							
Byte 18	Analog Input Ch9 Low byte							
Byte 19	Analog Input Ch9 High byte							
Byte 20	Analog Input Ch10 Low byte							
Byte 21	Analog Input Ch10 High byte							
Byte 22	Analog Input Ch11 Low byte							
Byte 23	Analog Input Ch11 High byte							
Byte 24	Analog Input Ch12 Low byte							
Byte 25	Analog Input Ch12 High byte							
Byte 26	Analog Input Ch13 Low byte							
Byte 27	Analog Input Ch13 High byte							
Byte 28	Analog Input Ch14 Low byte							
Byte 29	Analog Input Ch14 High byte							
Byte 30	Analog Input Ch15 Low byte							
Byte 31	Analog Input Ch15 High byte							

### 3.7.8. Parameter Data

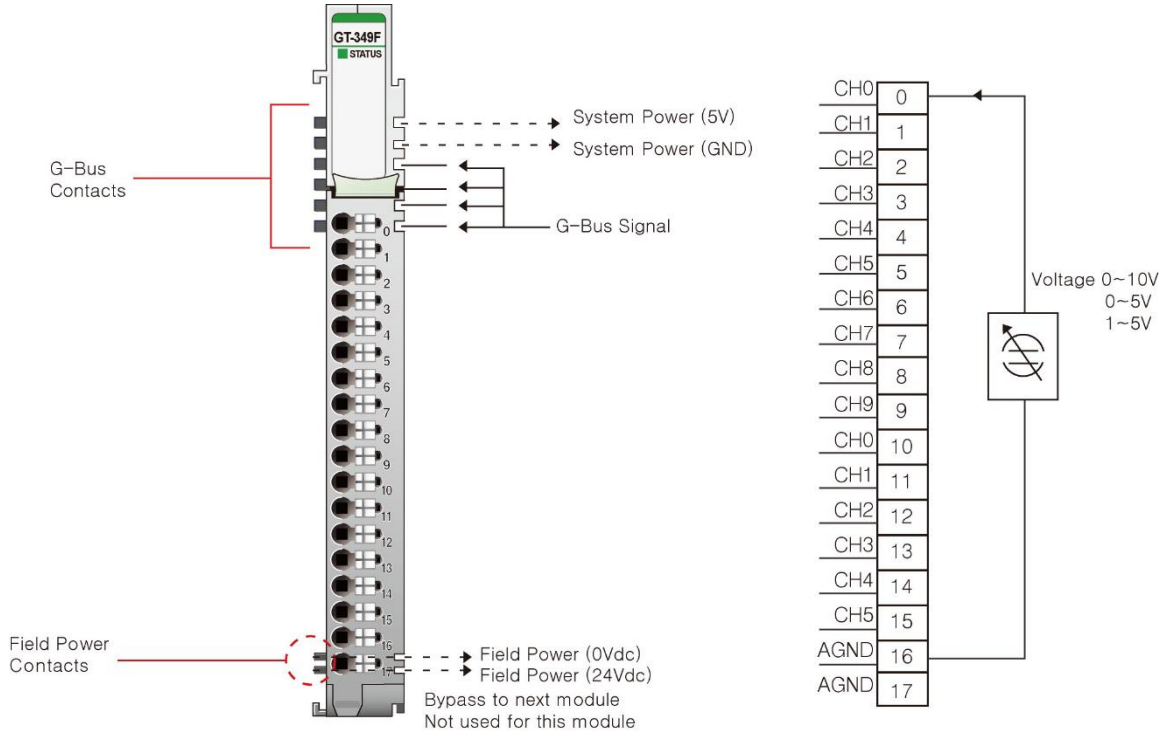
- . Valid Parameter length : 18 Bytes

- . Parameter Data

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Voltage Range for Channel 0 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 1	Voltage Range for Channel 1 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 2	Voltage Range for Channel 2 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 3	Voltage Range for Channel 3 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 4	Voltage Range for Channel 4 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 5	Voltage Range for Channel 5 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 6	Voltage Range for Channel 6 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 7	Voltage Range for Channel 7 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 8	Voltage Range for Channel 8 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 9	Voltage Range for Channel 9 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 10	Voltage Range for Channel 10 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 11	Voltage Range for Channel 11 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 12	Voltage Range for Channel 12 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 13	Voltage Range for Channel 13 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 14	Voltage Range for Channel 14 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 15	Voltage Range for Channel 15 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 16	Filter Time ( H00: Default Filter(20) / H01: Fastest ~ / H3E : Slowest)							
Byte 17	Not used(=00)							

### 3.8. GT-349F

#### 3.8.1. 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)

### 3.8.2. LED Indicator



LED No.	LED Function / Description	LED Color
0	Status LED	Green

### 3.8.3. Channel Status LED

Status	LED	To indicate
G-Bus Status	Off Green	Disconnection Connection



### 3.8.4. Environment Specification

<b>Environmental Specification</b>	
Operation 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
<b>General Specification</b>	
Shock Operating	IEC 60068-2-27
Vibration Resistance	Based on IEC 60068-2-6 DNVGL-CG-0039 : Vibration Class B, 4g
Industrial Emissions	EN61000-6-4/All : 2011
Industrial Immunity	EN61000-6-2 : 2005
Installation Position	Vertical and horizontal installation is available
Product Certifications	CE, UL, FCC

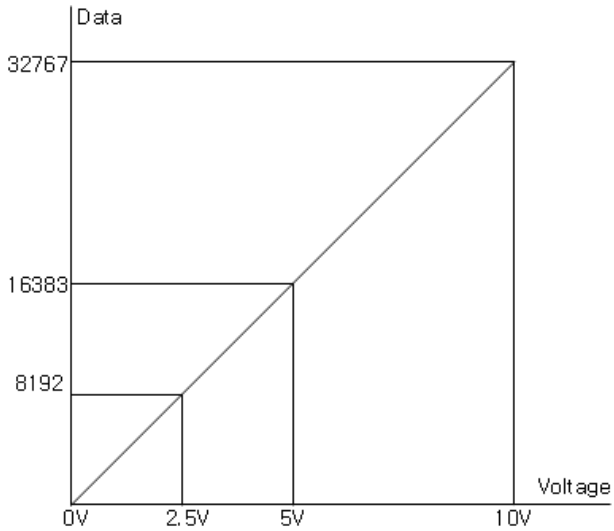
### 3.8.5. Specification

Items	Specification
<b>Input Specification</b>	
Inputs Per Module	16 Channels Single Ended, Non-Isolated Between Channel
Indicators(Logic side)	1 Green Input Status
Resolution in Ranges	16 bits (Include Sign) 15 bits : 0.31mV/bit(0~10V), 0.15mV/bit(0~5V), 0.12mV/bit(1~5V)
Input Current Ranges	0~10Vdc, 0~5Vdc, 1~5Vdc
Data Format	16 Bits Integer (2' compliment)
Module Error	±0.1% Full Scale @ 25°C ambient ±0.3% Full Scale @ -40°C, 60°C
Input Impedance	500kΩ
Diagnostic	Diagnostic Field Power Off : LED Blinking
Conversion Time	1.0 msec / All Channels
Field Calibration	Not Required
<b>General Specification</b>	
Power Dissipation	Max. 210mA @ 5.0Vdc
Isolation	I/O to Logic : Photocoupler Isolation Field Power : Non-Isolation
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. 1.0mm <sup>2</sup> (AWG18)
Weight	63g
Module Size	12mm x 109mm x 70mm
<b>Environment Condition</b>	<b>Refer to 'Environment Specification'</b>

### 3.8.6. Data Value / Voltage

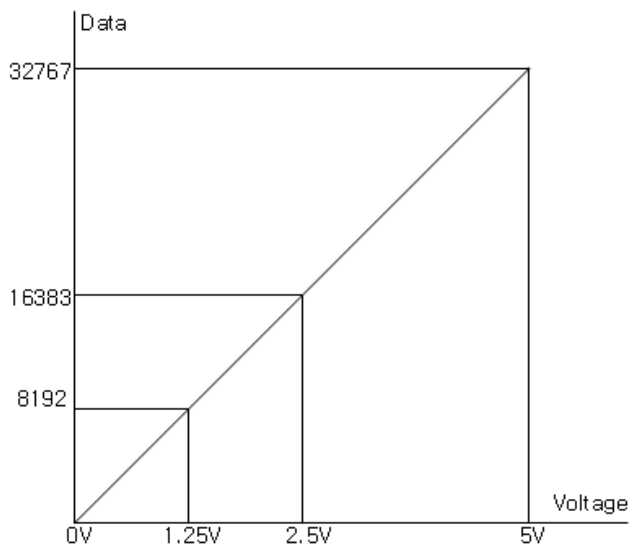
**Voltage Range : 0~10Vdc**

Voltage	0.0V	2.5V	5.0V	10.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



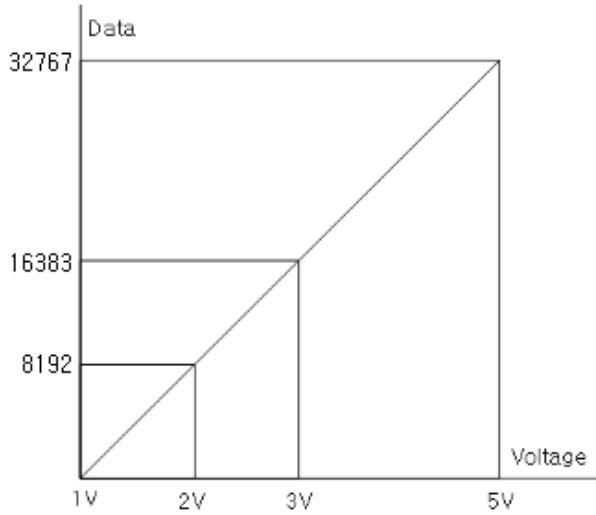
**Voltage Range : 0~5Vdc**

Voltage	0.0V	1.25V	2.5V	5.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



**Voltage Range : 1~5Vdc**

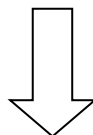
Voltage	1.0V	2.0V	3.0V	5.0V
Data(Hex)	H0000	H1FFF	H3FFF	H7FFF



**3.8.7. 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
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
Byte 16								Analog Input Ch8 Low byte
Byte 17								Analog Input Ch8 High byte
Byte 18								Analog Input Ch9 Low byte
Byte 19								Analog Input Ch9 High byte
Byte 20								Analog Input Ch10 Low byte
Byte 21								Analog Input Ch10 High byte
Byte 22								Analog Input Ch11 Low byte
Byte 23								Analog Input Ch11 High byte
Byte 24								Analog Input Ch12 Low byte
Byte 25								Analog Input Ch12 High byte
Byte 26								Analog Input Ch13 Low byte
Byte 27								Analog Input Ch13 High byte
Byte 28								Analog Input Ch14 Low byte
Byte 29								Analog Input Ch14 High byte
Byte 30								Analog Input Ch15 Low byte
Byte 31								Analog Input Ch15 High byte

### 3.8.8. Parameter Data

- . Valid Parameter length : 18 Bytes

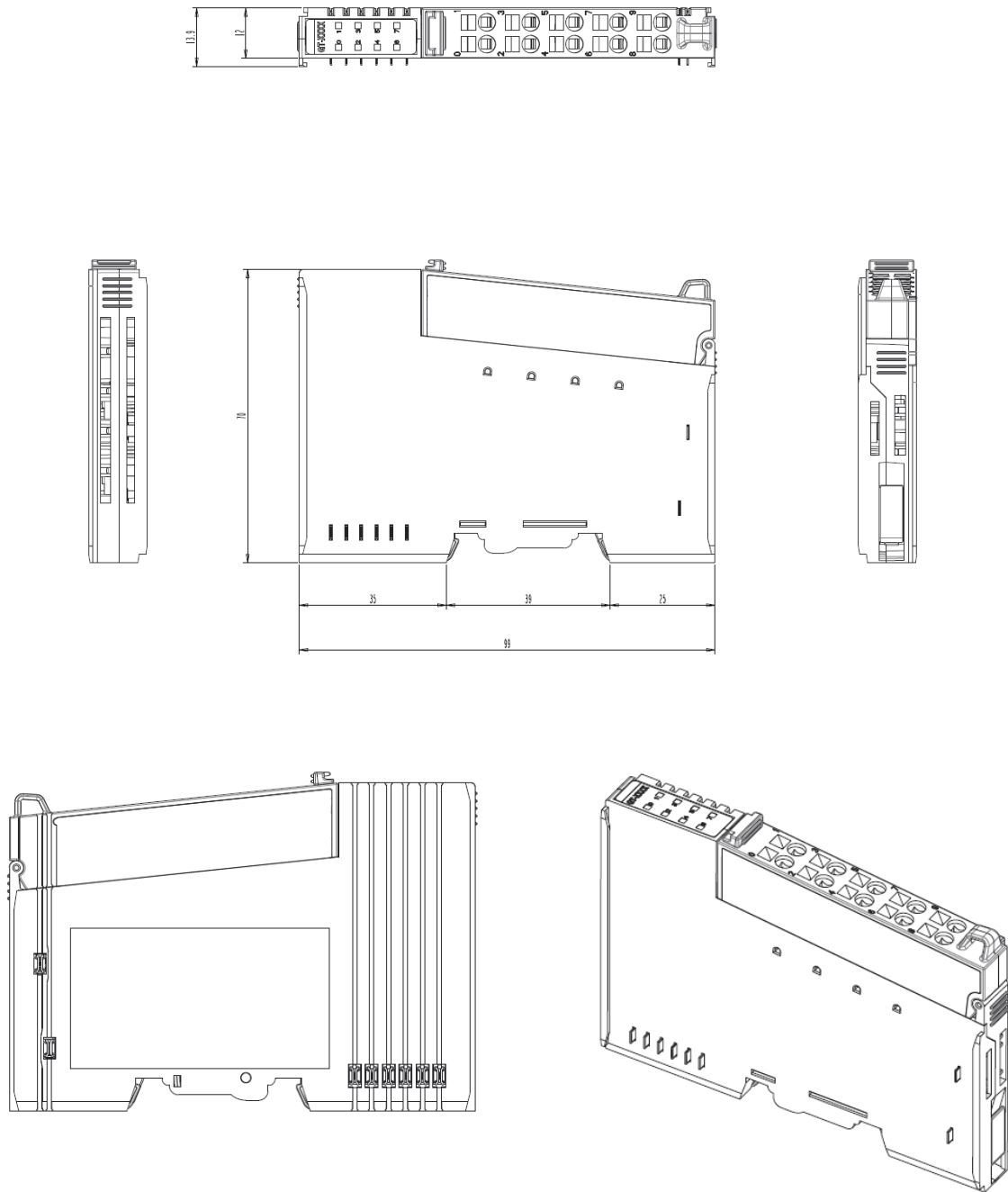
- . Parameter Data

Bit No	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 0	Voltage Range for Channel 0 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 1	Voltage Range for Channel 1 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 2	Voltage Range for Channel 2 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 3	Voltage Range for Channel 3 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 4	Voltage Range for Channel 4 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 5	Voltage Range for Channel 5 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 6	Voltage Range for Channel 6 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 7	Voltage Range for Channel 7 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 8	Voltage Range for Channel 8 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 9	Voltage Range for Channel 9 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 10	Voltage Range for Channel 10 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 11	Voltage Range for Channel 11 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 12	Voltage Range for Channel 12 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 13	Voltage Range for Channel 13 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 14	Voltage Range for Channel 14 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 15	Voltage Range for Channel 15 (H00: 0~10Vdc, H01: 0~5Vdc, H02: 1~5Vdc)							
Byte 16	Filter Time ( H00: Default Filter(20) / H01: Fastest ~ / H3E : Slowest)							
Byte 17	Not used(=00)							

### 4. Dimension

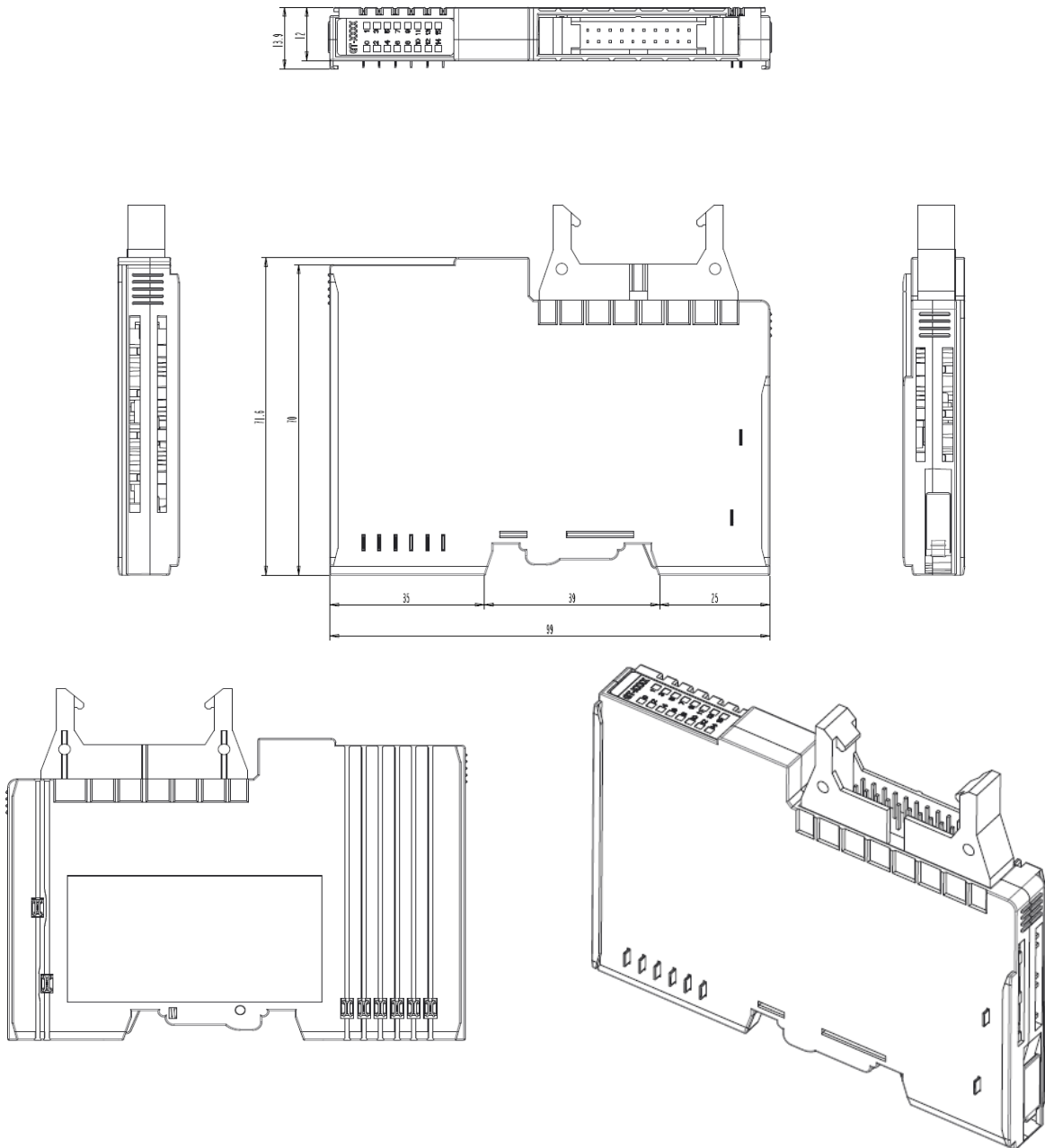
#### 4.1. GT-3xx4(RTB), GT-3xx8(RTB)

(mm)



## 4.2. GT-3xxF(HIROSE Connector)

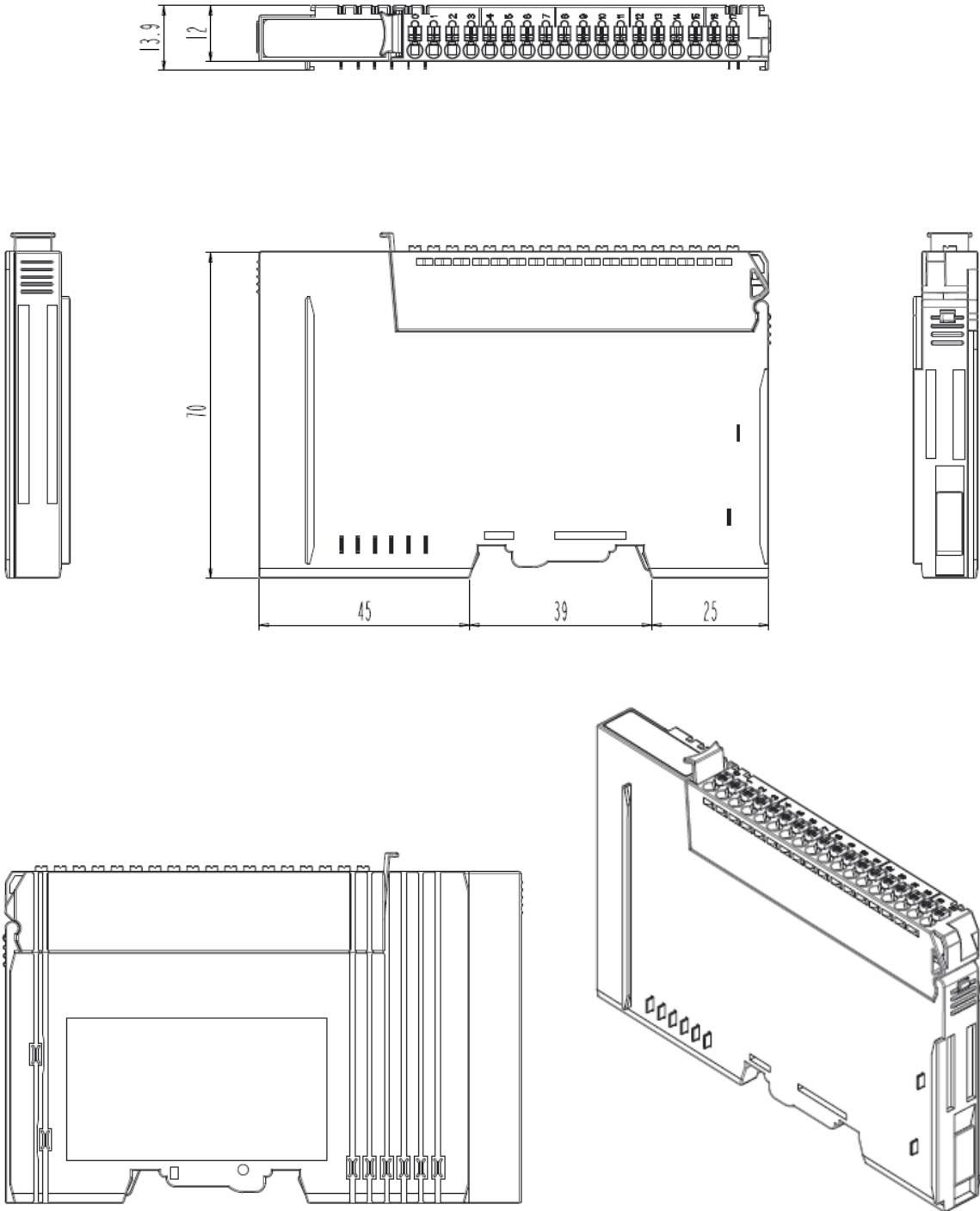
(mm)





### 4.3. GT-3xxF(New 18RTB)

(mm)



## 5. Mounting

### Caution!

#### Hot surface!

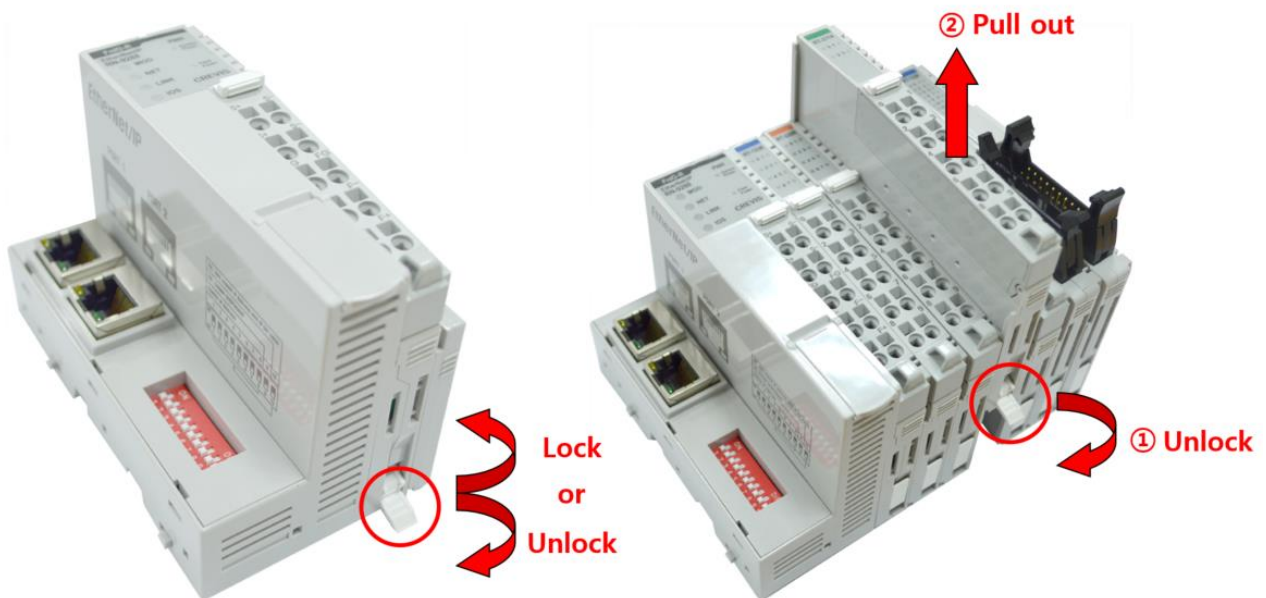
The surface of the housing can become hot during operation. If the device was operated at high ambient temperatures, allow it to be cool before touching it.

### Notice!

#### Perform work on devices only if they are de-energized!

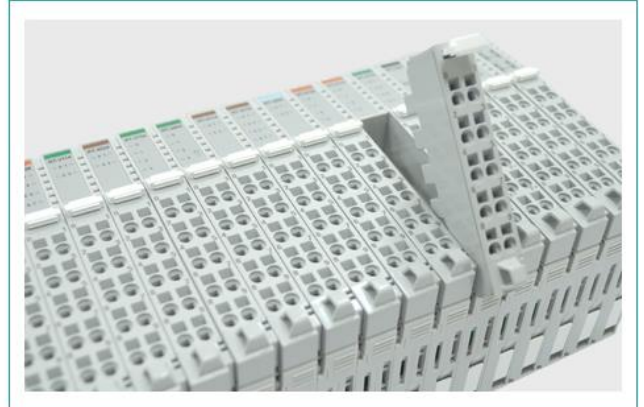
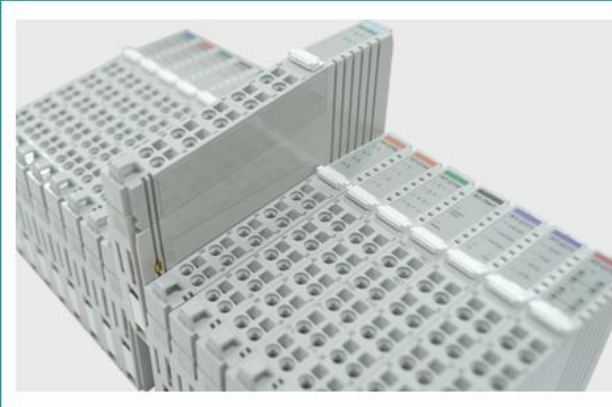
Working on energized devices can damage them. Therefore, turn off the power supply before working on the devices.

### 5.1. I/O Inserting and Removing Devices



- As above figure in order to safeguard the G-Series module from jamming, it should be fixed onto the DIN rail with locking level. To do so, fold on the upper of the locking lever. To pull out the G-Series module, unfold the locking lever as below figure.

## 5.2. RTB (Removable Terminal Block)



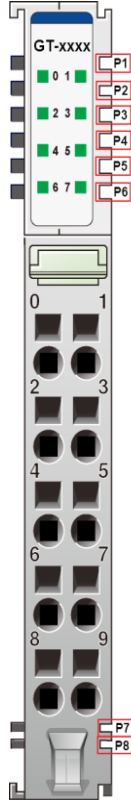
Whole terminal block can be combined and removed for the convenience.

There is a locking switch on the RTB for the easy combination and easy removal.

Easy combination and easy removal for IO modules on the din rail through One Touch Locking Switch.

## 6. G-Bus Pin Description

Communication between the GN series and the expansion module as well as system / field power supply of the bus modules is carried out via the internal bus. It is comprised of 6 data pin and 2 field power pin.



\*Please refer to the table below regarding the pin description from P1 to P8.

No.	Description
P1	System Power (VCC)
P2	System Power (GND)
P3	GBUS TX +
P4	GBUS TX -
P5	GBUS RX +
P6	GBUS RX -
P7	Field Power (GND)
P8	Field Power (VCC)

**DANGER**



Do not touch data and field power pins in order to avoid soiling and damage by ESD noise.