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# **FnIO G – Series :**

## ***GT-221F***

***GT-221F (16 Points, Sink Output Terminal, 24Vdc, 0.3A)***

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History

| Rev  | Pages | Remarks   | Date       | Editor        |
|------|-------|---|------------|---------------|
| 1.00 |       |   | 2016/04/08 | Hongseok, Kim |
| 1.01 |       | Environment Specification, Current  | 2016/06/03 | Dohoon, Lee   |
| 1.02 | 5     | Field Power dissipation   | 2017/03/31 | Hongseok, Kim |
| 1.03 |       | Edit typos  | 2017/07/17 | Hongseok, Kim |
| 1.04 | 4,5   | Shock, Vibration specification changed<br>General specification added(UL) | 2020/04/20 | Juyong, Bae   |
| 1.05 | 6     | Change Diagram, Signal Description  | 2023/04/03 | Soyeong, Park |
| 1.06 | 4,6,7 | Edit Certification / Change Diagram, Status LED                           | 2023/08/04 | Suna, Hwang   |
|      |       |   |            |               |

# Specification

## 1. ENVIRONMENT SPECIFICATION

| Environmental specification |   |
|-----------------------------|---|
| 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  |
| General specification       |   |
| Shock Operating             | IEC 60068-2-27                                    |
| Vibration Resistance        | Based on IEC 60068-2-6, 4g                        |
| Industrial Emissions        | EN61000-6-4/All : 2011                            |
| Industrial Immunity         | EN 61000-6-2 : 2005                               |
| Installation Position       | Vertical and horizontal installation is available |
| Product Certifications      | CE, UL  |

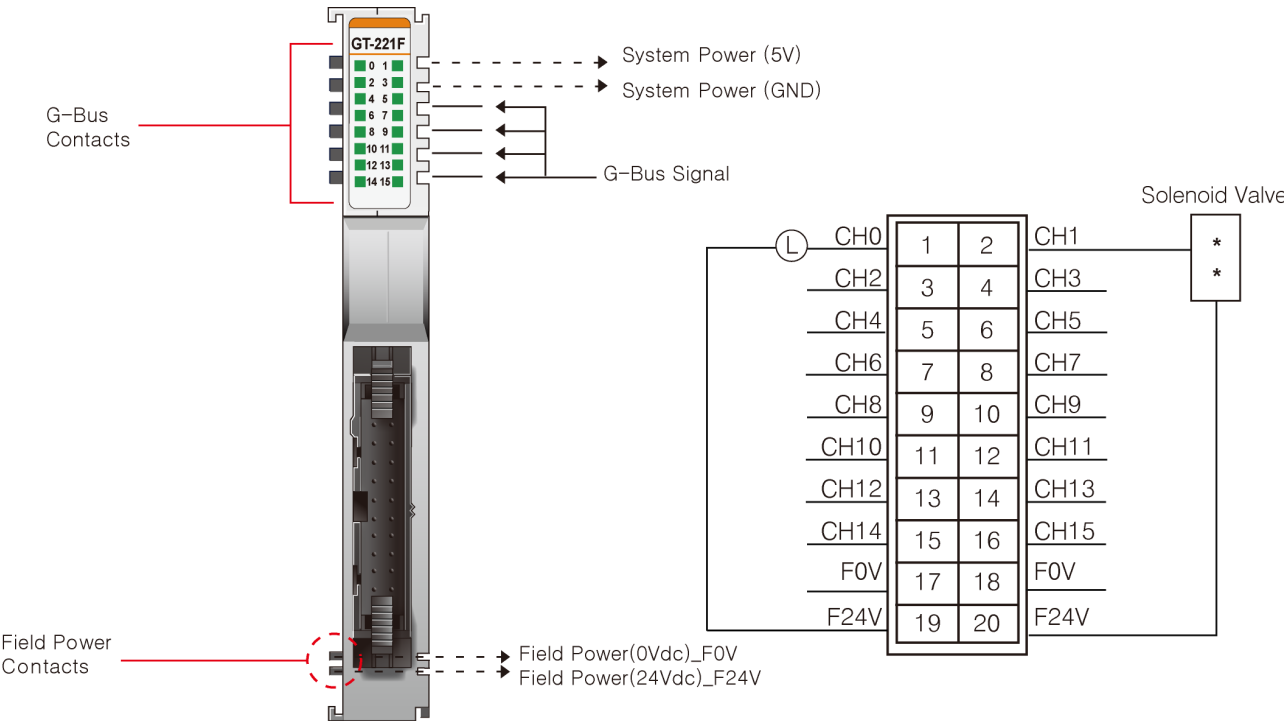
# Specification

## 2. GT-221F (16 Points, Sink Output Terminal)

### 2.1. GT-221F Specification

| Items                        | Specification  |
|------------------------------|--|
| <b>Input Specification</b>   |  |
| Output per module            | 16 points sink type  |
| Indicators                   | 16 green output status   |
| Output voltage range         | 24Vdc nominal<br>15Vdc ~ 30Vdc @ 70°C  |
| On-state voltage drop        | 0.3Vdc @ 25°C<br>0.5Vdc @ 70°C   |
| On-state min. current        | Min. 1mA   |
| Off-state leakage current    | Max. 30uA  |
| Output signal delay          | OFF to ON : Max. 0.5ms<br>ON to OFF : Max 0.5ms  |
| Output current rating        | Max. 0.3A per channel / Max. 4.8A per unit   |
| Protection                   | Over current limit: Min. 3.5A@ 25°C per each channels<br>Thermal shutdown : Min 3A@ 25°C per each channels<br>Short circuit protection |
| Common type                  | 16 points / 2 COM  |
| <b>General specification</b> |  |
| Power dissipation            | Max. 50mA @ 5Vdc   |
| Isolation                    | I/O to Logic : photocoupler isolation<br>Field power : non-isolation   |
| UL field power               | Supply voltage : 24Vdc nominal, Class 2  |
| Field power                  | Supply voltage : 24Vdc nominal<br>Voltage range : 15~30Vdc<br>Power dissipation: 10mA @ 24Vdc  |
| Wiring                       | According to the Herose connector specification<br>Module Connector :HIF3BA-20PA-2.54DSA   |
| Weight                       | 53g  |
| Module size                  | 12mm x 99mm x 70mm   |
| <b>Environment condition</b> | <b>Refer to '1. Environment Specification'</b>   |

2.2. GT-221F Wiring Diagram

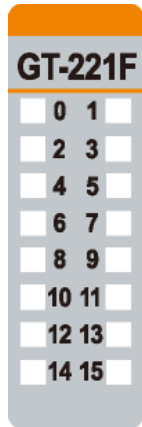


| Pin No. | Signal Description       | Signal Description       | Pin No. |
|---------|--------------------------|--------------------------|---------|
| 1       | Output Channel 0         | Output Channel 1         | 2       |
| 3       | Output Channel 2         | Output Channel 3         | 4       |
| 5       | Output Channel 4         | Output Channel 5         | 6       |
| 7       | Output Channel 6         | Output Channel 7         | 8       |
| 9       | Output Channel 8         | Output Channel 9         | 10      |
| 11      | Output Channel 10        | Output Channel 11        | 12      |
| 13      | Output Channel 12        | Output Channel 13        | 14      |
| 15      | Output Channel 14        | Output Channel 15        | 16      |
| 17      | Field Power 0V           | Field Power 0V           | 18      |
| 19      | Common (Field Power 24V) | Common (Field Power 24V) | 20      |

# Specification

## 2.3. GT-221F LED Indicator

### 2.3.1. LED Indicator



| LED No. | LED Function / Description | LED Color |
|---------|----------------------------|-----------|
| 0       | OUTPUT Channel 0           | Green     |
| 1       | OUTPUT Channel 1           | Green     |
| 2       | OUTPUT Channel 2           | Green     |
| 3       | OUTPUT Channel 3           | Green     |
| 4       | OUTPUT Channel 4           | Green     |
| 5       | OUTPUT Channel 5           | Green     |
| 6       | OUTPUT Channel 6           | Green     |
| 7       | OUTPUT Channel 7           | Green     |
| 8       | OUTPUT Channel 8           | Green     |
| 9       | OUTPUT Channel 9           | Green     |
| 10      | OUTPUT Channel 10          | Green     |
| 11      | OUTPUT Channel 11          | Green     |
| 12      | OUTPUT Channel 12          | Green     |
| 13      | OUTPUT Channel 13          | Green     |
| 14      | OUTPUT Channel 14          | Green     |
| 15      | OUTPUT Channel 15          | Green     |

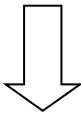
### 2.3.2. Channel Status LED

| Status    | LED   | To indicate            |
|-----------|-------|------------------------|
| No Signal | Off   | No Output Signal       |
| On Signal | Green | Output Signal detected |

2.4. Mapping data into the image table

● Output Image Value

| Bit No | Bit7 | Bit6 | Bit5 | Bit4 | Bit3 | Bit2 | Bit1 | Bit0 |
|--------|------|------|------|------|------|------|------|------|
| Byte0  | D7   | D6   | D5   | D4   | D3   | D2   | D1   | D0   |
| Byte1  | D15  | D14  | D13  | D12  | D11  | D10  | D9   | D8   |



● Output Module Data

|     |     |     |     |     |     |    |    |
|-----|-----|-----|-----|-----|-----|----|----|
| D7  | D6  | D5  | D4  | D3  | D2  | D1 | D0 |
| D15 | D14 | D13 | D12 | D11 | D10 | D9 | D8 |



2.5. Parameter Data

- Valid Parameter length: 4 Bytes
- Parameter Data

| Bit No | Bit7  | Bit6 | Bit5 | Bit4 | Bit3 | Bit2 | Bit1 | Bit0 |
|--------|---|------|------|------|------|------|------|------|
| Byte0  | Fault Action (ch0~ch7) 0: Fault value, 1:Hold last state  |      |      |      |      |      |      |      |
| Byte1  | Fault Action (ch8~ch15) 0: Fault value, 1:Hold last state |      |      |      |      |      |      |      |
| Byte2  | Fault value (ch0~ch7) 0:Off, 1:On                         |      |      |      |      |      |      |      |
| Byte3  | Fault value (ch8~ch15) 0:Off, 1:On                        |      |      |      |      |      |      |      |