



# Digital Integrated Protection & Monitoring Device

**XGIPAM**  
neXt Generation Intelligent Device



**LSIS**



LSIS protection and measurement products specializes in the protection and monitoring of electricity distribution networks, making your power distribution easier and more reliable.

You can either integrate these products into your intelligent switchgear or use them as standalone multifunction units.

In addition, all of these products provide versatile communications as well as sophisticated functionality for event, alarm and fault analysis.

**Contents**

- External & Structure ..... 4
- Functional block diagram ..... 5
- Technical specifications ..... 6
- Characteristics ..... 8
- Wiring ..... 12
- Contact and Logic usage ..... 15
- Dimension & Ordering ..... 17
- Certification ..... 18

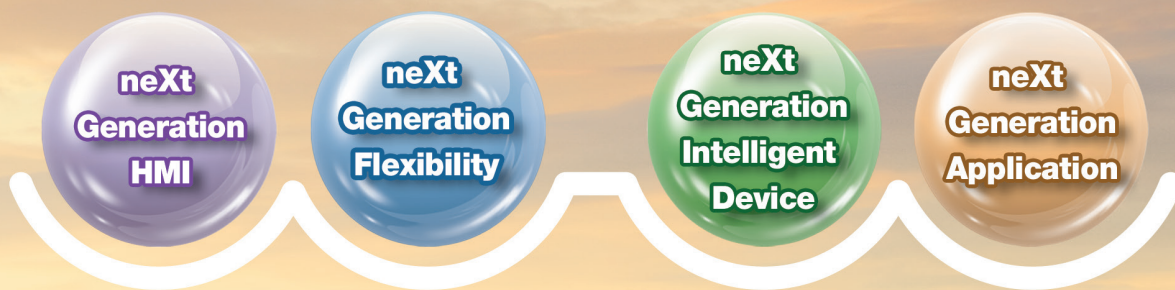






neXt Generation Intelligent Device

## Digital Integrated Protection & Monitoring Device



The whole GIPAM, product family for line, motor, generator protection and monitoring offers you an integrated solution which starts with extensive protection, measurement and control functionality.

# External & Structure

## Structure



### LED

- 1 POWER LED (Green)
- 2 COMM LED (Yellow)
- 3 DIAG/ERR LED (Red)
- 4 PICK-UP/TRIP LED (Red)
- 5 Fault assign LED (Virtual)

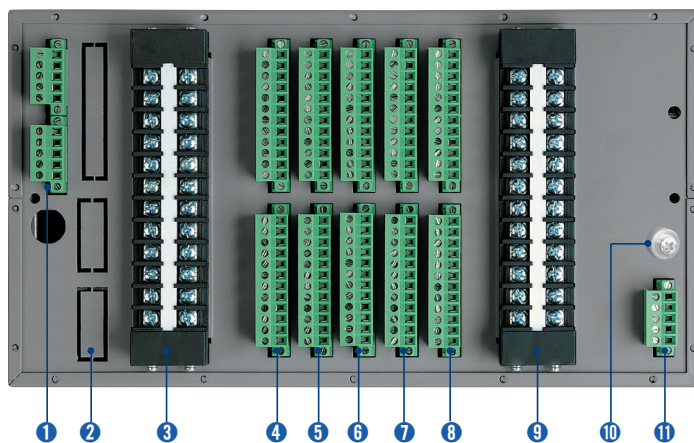
### Key

- 6 R/L: Remote(Green) / Local(Red)
- 7 RESET: Message clear (Red: Trip)
- 8 OPEN(Green): CB Open
- 9 CLOSE(Red): CB Close

### Other

- 10 X GIPAM Case
- 11 USB (Memory, PC, PLC)
- 12 Draw-Out handle

## Rear view



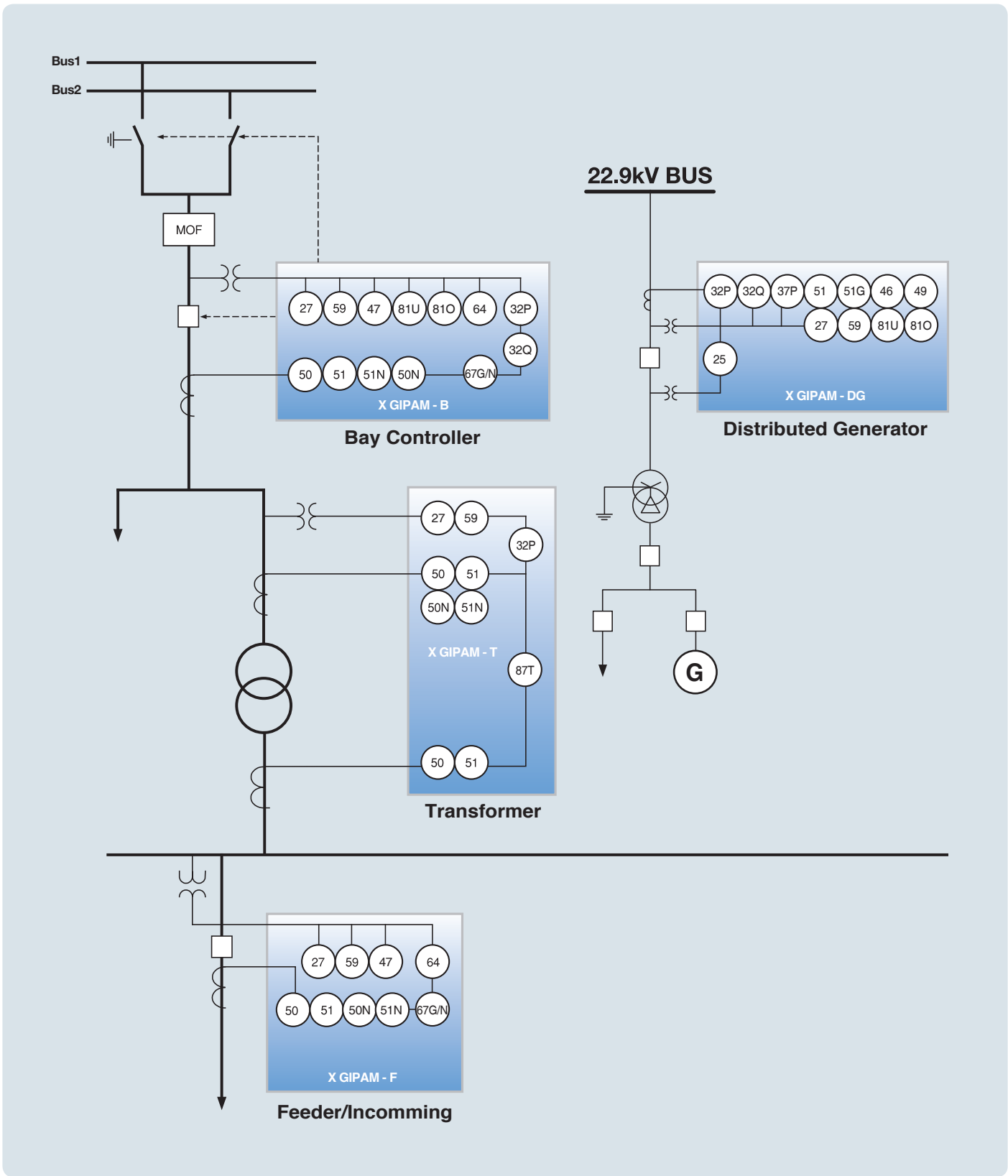
### Slot

### Module

- 1 Main processing
- 2 Slot #0 Extended communication Module
- 3 Slot #1 Arithmetic
- 4 Slot #2 AIO (Option)
- 5 Slot #3 AIO, SMS/Voice, Arc(Optional)
- 6 Slot #4 DIO (Standard)
- 7 Slot #5 DIO (Bay, DG)
- 8 Slot #6 DIO (Option)
- 9 Slot #7 Arithmetic or DIO
- 10 Power module
- 11 FG terminal



# Functional block diagram



# Technical specifications

## Type of protection

| Type         | Vsage                 | Protection                                                                                                                                                                                                          |
|--------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X GIPAM - F  | Feeder/Incomming      | OCR(50/51), OCGR(50/51N), UVR(27), OVR(59), SGR(67G), DGR(67N), OVGR(64I/D), NSOVR(47N), POR(47), SYNC Check(25), Reclosing(79), Temperature(38)                                                                    |
| X GIPAM - B  | Bay controller        | OCR(50/51), OCGR(50/51N), UVR(27), OVR(59), SGR(67G), DGR(67N), OVGR(64I/D), NSOVR(47N), POR(47), SYNC Check(25), Reclosing(79), Temperature(38), DOCR(67I/D), NSOCR(46I/D), UFR(81U), OFR(81O), DPR(32P), DQR(32Q) |
| X GIPAM - T  | Transformer           | OCR(50/51)×2, OCGR(50/51N), UVR(27), OVR(59), Temperature(38), DPR(32P), DFR(87T)                                                                                                                                   |
| X GIPAM - DG | Distributed Generator | OCR(50/51), OCGR(50/51N), UVR(27), OVR(59), DPR(32P), UPR(37P), DQR(32Q), UFR(81U), OFR(81O), DGR(67N), SYNC Check(25), DOCR(67I/D), NSOCR(46I/D), POR(47), NSOVR(47N), ROCOF(81R), SGR(67G), OVGR(64I/D)           |

## Measurement function

| Measurement              | Range                      | Accuracy  | Remarks                                 |
|--------------------------|----------------------------|-----------|-----------------------------------------|
| Voltage                  | 0.0V ~ 999.999 kV          | ± 0.2%    | Phase voltage, Line voltage             |
| Zero-phase voltage       | 0.0V ~ 999.999 kV          | ± 2.0%    | Vo                                      |
| Phase voltage            | 0.0V ~ 999.999 kV          | ± 0.2%    | VB                                      |
| Unbalanced voltage rate  | 0.0% ~ 200.00%             | ± 2.0%    | IEEE Std. 141                           |
| Reverse voltage          | 0.0V ~ 999.999 kA          | ± 1.0%    | V <sub>2</sub>                          |
| Current                  | 0.0A ~ 999.999 kA          | ± 0.2%    | Phase current                           |
| Zero-phase current (CT4) | 0.0A ~ 999.999 kA          | ± 2.0%    | I <sub>n</sub>                          |
| Zero-phase current (ZCT) | 0.0A ~ 999.999 kA          | ± 2.0%    | I <sub>o</sub>                          |
| Reverse current          | 0.0A ~ 999.999 kA          | ± 1.0%    | I <sub>2</sub>                          |
| Phase                    | 0.0° ~ 360.0°              | ± 5°      | -                                       |
| Active power             | 0.00W ~ 9999.999 MW        | ± 0.5%    | + Forward, - Reverse                    |
| Reactive power           | 0.00VAR ~ 9999.999 MVAR    | ± 0.5%    | -                                       |
| Apparent power           | 0.00VA ~ 9999.999 MVA      | ± 1.0%    | -                                       |
| Active power amount      | 0.00WH ~ 99999.999 MWH     | ± 0.5%    | + Forward, - Reverse                    |
| Reactive power amount    | 0.00VARH ~ 99999.999 MVARH | ± 0.5%    | -                                       |
| Frequency (Va)           | 45Hz ~ 65Hz                | ± 0.005Hz | -                                       |
| Frequency (VB)           | 45Hz ~ 65Hz                | ± 0.005Hz | -                                       |
| PF                       | -1.000 ~ 1.000             | ± 1.0%    | Forward / Reverse                       |
| DPF                      | -1.000 ~ 1.000             | ± 1.0%    |                                         |
| Voltage hamonics         | 0.00% ~ 100.00%            | ± 5.0%    | 2nd ~ 63th harmonics THD, TDD, K-Factor |
| Current hamonics         | 0.00% ~ 100.00%            | ± 5.0%    |                                         |
| Active power demand      | 0.00W ~ 9999.999 MW        | -         | Peak demand                             |
| Reactive power demand    | 0.00VAR ~ 9999.999 MVAR    | -         |                                         |
| Voltage demand           | 0.3A ~ 999.999 kA          | -         | Each phase & Peak demand                |
| Load factor              | 0.0% ~ 100.000%            | ± 0.2%    | Each phase current                      |



## Ratings

| Type                          |                   | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                          |
|-------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| Wiring                        |                   | 3P3W, 3P4W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                          |
| Input                         | Frequency         | 50Hz or 60Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |
|                               | Voltage           | PT: 100 $\wedge$ /3, 110 $\wedge$ /3, 120 $\wedge$ /3, 190 $\wedge$ /3, 100, 110, 120V<br>GPT: 100~190V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                          |
|                               | Current           | CT: 5A, ZCT: 1.5mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                          |
|                               | Power consumption | Normal: Max. 30W, Operating: Max. 70W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |
|                               | Control voltage   | AC/DC 110/125V (±20%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |
|                               | Burden            | PT: Max. 0.5VA (Phase PT Standard), CT: Max. 1.0VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                          |
| Output contact                | TRIP              | Rated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | AC 250V 10A / DC 30V 10A, Resistive Load |
|                               |                   | Open                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | AC 2500VA, DC 300W                       |
|                               | ALARM             | Close                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | AC 250V 5A / DC 30V 5A, Resistive Load   |
|                               |                   | Open                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | AC 1250VA, DC 150W                       |
| Insulation Resistance         |                   | Over DC 500V 10MΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |
| Dielectric Strength           |                   | AC 2kV(1kV) / for 1 min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                          |
| Overload withstand            | Current circuit   | 3 In for 3 hours, 20 In for 2 seconde                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |
|                               | Voltage circuit   | 1.15Vn for 3 hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                          |
| Fast Transient Disturbance    |                   | Power Input 4kV, Other Input 2kV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                          |
| Electrostatic Discharge (ESD) |                   | Air 8kV, Contact 6kV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          |
| Operation temperature         |                   | -10℃ ~ 55℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                          |
| Storage temperature           |                   | -25℃ ~ 70℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                          |
| Humidity                      |                   | 30% ~ 80%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                          |
| Others                        |                   | Non-impact place, Non-air pollution place                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                          |
| Weight                        |                   | 7kg (HMI: 2kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                          |
| Standard                      |                   | IEC 60255-22-1: 1MHz Burst disturbance tests<br>IEC 60255-22-2: Electrostatic discharge tests<br>IEC 60255-22-3: Radiated radio frequency electromagnetic field<br>IEC 60255-22-4: Electrical fast transient/burst immunity test<br>IEC 60255-22-5: Surge immunity test<br>IEC 60255-22-6: Immunity to conducted disturbances induced by radio frequency fields<br>IEC 60255-22-7: Power frequency immunity test<br>IEC 60255-11: Interruptions to and alternating component (ripple) in d.c. auxiliary quantity of measuring relay<br>IEC 60255-25: Electromagnetic emission tests for measuring relays and protection equipment<br>KEMC 1120<br>IEC 6850-6, 7-1, 7-2, 7-3, and 8-1 |                                          |

# Characteristics

## X GIPAM - F

| Protection            | Operating part | Setting range                                                                                                                                                                                                                                                                                                                                                                | Operating characteristics            | Operating time <small>Note)</small>                                           | Delay time             | Remarks                                                                          |
|-----------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------|------------------------|----------------------------------------------------------------------------------|
| OCR (50)              | Stage 1        | OFF, 0.10~32.00In/0.01In                                                                                                                                                                                                                                                                                                                                                     | Instantaneous<br>Definite            | 30msec and below<br>0.050~300.000s/0.001s                                     | -                      | -                                                                                |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| OCR (51)              | Stage 1        | OFF, 0.02~10.00In/0.01In                                                                                                                                                                                                                                                                                                                                                     | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.2/0.01                                        | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                                  |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| OCGR (50N)            | Stage 1        | OFF, 0.1~32.00In/0.01In                                                                                                                                                                                                                                                                                                                                                      | Instantaneous<br>Definite            | 30msec and below<br>0.050~300.000s/0.001s                                     | -                      | -                                                                                |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| OCGR (51N)            | Stage 1        | OFF, 0.02~10.00In/0.01In                                                                                                                                                                                                                                                                                                                                                     | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.2/0.01                                        | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                                  |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| SGR (67G)             | Stage 1        | OFF, 0.6~6.0mA/0.1mA<br>Vo: 0V, 8V~80V/1V<br>Characteristics angle: 0~±90°/1°                                                                                                                                                                                                                                                                                                | Definite                             | 0.050~10.000s/0.001s                                                          | -                      | If the zero phaes<br>voltage is set to 0, the<br>zero phase current<br>will act. |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| DGR (67N)             | Stage 1        | OFF, 0.02~10.00In/0.01In<br>Vo: 8~80V/1V<br>Characteristics angle: 0~±90°/1°<br>Operating range: 60~87°/1°                                                                                                                                                                                                                                                                   | Instantaneous<br>Definite<br>Inverse | 45msec and below<br>0.050~300.000s/0.001s<br>0.05~1.20/0.01                   | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                                  |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| UVR (27)              | Stage 1        | OFF, 0.10~1.10Vn/0.01Vn<br>Auto Reset: Enable/Disable<br>Dead Voltage: Enable/Disable                                                                                                                                                                                                                                                                                        | Definite                             | 0.050~300.000s/0.001s                                                         | -                      | Dead Voltage Block:<br>0.05Vn                                                    |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| OVR (59)              | Stage 1        | OFF, 0.80~1.60Vn/0.01                                                                                                                                                                                                                                                                                                                                                        | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.01~1.20/0.01                                       | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/EI                                                 |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| OVGR (64I)            | Stage 1        | OFF, 5~80V/1V                                                                                                                                                                                                                                                                                                                                                                | Instantaneous<br>Definite            | 30msec and below<br>0.050~300.000s/0.001s                                     | -                      | -                                                                                |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| OVGR (64D)            | Stage 1        | OFF, 5~80V/1V                                                                                                                                                                                                                                                                                                                                                                | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.20/0.01                                       | 0~300.00s/0.001s       | IEC SI/VI/EI/LI<br>ANSI SI/VI/EI                                                 |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| NSOVR (47N)           | Stage 1        | OFF, 11~120V/1V                                                                                                                                                                                                                                                                                                                                                              | Definite                             | 0.050~300.000s/0.001s                                                         | -                      | All 3 phase voltage<br>must be over 5V.                                          |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| POR (47)              | Stage 1        | OFF, 2.0~100%/1%                                                                                                                                                                                                                                                                                                                                                             | Definite                             | 0.050~300.000s/0.001s                                                         | -                      | -                                                                                |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| Synchro-check<br>(25) | Stage 1        | V Diff: OFF, 2~50V/1V<br>Phase Diff: OFF, 5~45/1°<br>F Diff: 0.01~0.50/0.01Hz<br>Dead V: 0.2~0.4Vn/0.01Vn                                                                                                                                                                                                                                                                    | -                                    | After the synchronous<br>Conditions are satisfied,<br>it operate within 1sec. | -                      | 0.5Vn~1.2Vn                                                                      |
| Temperature<br>(38)   | Stage 1        | OFF, 20~180℃/1℃                                                                                                                                                                                                                                                                                                                                                              | Definite                             | 0.050~300.000s/0.001s                                                         | -                      | -                                                                                |
|                       | Stage 2        |                                                                                                                                                                                                                                                                                                                                                                              |                                      |                                                                               |                        |                                                                                  |
| Reclosing (79)        | Stage 1        | Reclosing counts: 1 ~ 5 times<br>• Prepare Timer: 0.020 s ~ 60.000 s (0.001 s)<br>• Dead Timer: 5, 0.060 s ~ 300.000 s (0.001 s)<br>• CB Operation Timer: 0.05 s ~ 0.500 s (0.001 s)<br>• Reclaim Time: 1.000 s ~ 300.000 s (0.001 s)<br>• Scheme: Dead Bus-Dead Line, Dead Bus-Live Line,<br>Live Bus-Dead Line, Live Bus-Live Line<br>• Dead: 0 ~ 0.1Vn<br>• Live: 0.5Vn ~ |                                      |                                                                               |                        |                                                                                  |

Note) The operating time is based on 60Hz.

\* In case of using vector sum it will be operated in 50ms

## X GIPAM - B

| Protection         | Operating part                           | Setting range                                                                                                                                                                                                                                                                                                                                                             | Operating characteristics            | Operating time <sup>Note)</sup>                             | Delay time             | Remarks                                                                  |
|--------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------|------------------------|--------------------------------------------------------------------------|
| OCR (50)           | Stage 1<br>Stage 2                       | OFF, 0.10~32.00In/0.01In                                                                                                                                                                                                                                                                                                                                                  | Instantaneous<br>Definite            | 30msec and below<br>0.050~300.000s/0.001s                   | -                      | -                                                                        |
| OCR (51)           | Stage 1<br>Stage 2                       | OFF, 0.02~10.00In/0.01In                                                                                                                                                                                                                                                                                                                                                  | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.2/0.01                      | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                          |
| OCGR (50N)         | Stage 1<br>Stage 2                       | OFF, 0.1~32.00In/0.01In                                                                                                                                                                                                                                                                                                                                                   | Instantaneous<br>Definite            | 30msec and below<br>0.050~300.000s/0.001s                   | -                      | -                                                                        |
| OCGR (51N)         | Stage 1<br>Stage 2                       | OFF, 0.02~10.00In/0.01In                                                                                                                                                                                                                                                                                                                                                  | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.2/0.01                      | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                          |
| SGR (67G)          | Stage 1<br>Stage 2                       | OFF, 0.6~6.0mA/0.1mA<br>Vo: 0V, 8V~80V/1V<br>Characteristics angle: 0~±90°/1°                                                                                                                                                                                                                                                                                             | Definite                             | 0.050~10.000s/0.001s                                        | -                      | If the zero phases voltage is set to 0, the zero phase current will act. |
| DGR (67N)          | Stage 1<br>Stage 2                       | OFF, 0.02~10.00In/0.01In<br>Vo: 8~80V/1V<br>Characteristics angle: 0~±90°/1°<br>Operating range: 60~87°/1°                                                                                                                                                                                                                                                                | Instantaneous<br>Definite<br>Inverse | 45msec and below<br>0.050~300.000s/0.001s<br>0.05~1.20/0.01 | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                          |
| UVR (27)           | Stage 1<br>Stage 2                       | OFF, 0.10~1.10Vn/0.01Vn<br>Auto Reset: Enable/Disable<br>Dead Voltage: Enable/Disable                                                                                                                                                                                                                                                                                     | Definite                             | 0.050~300.000s/0.001s                                       | -                      | Dead Voltage Block:<br>0.05Vn                                            |
| OVR (59)           | Stage 1<br>Stage 2                       | OFF, 0.80~1.60Vn/0.01                                                                                                                                                                                                                                                                                                                                                     | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.01~1.20/0.01                     | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/EI                                         |
| OVGR (64I)         | Stage 1<br>Stage 2                       | OFF, 5~80V/1V                                                                                                                                                                                                                                                                                                                                                             | Instantaneous<br>Definite            | 30msec and below<br>0.050~300.000s/0.001s                   | -                      | -                                                                        |
| OVGR (64D)         | Stage 1<br>Stage 2                       | OFF, 5~80V/1V                                                                                                                                                                                                                                                                                                                                                             | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.20/0.01                     | 0~300.00s/0.001s       | IEC SI/VI/EI/LI<br>ANSI SI/VI/EI                                         |
| NSOVR (47N)        | Stage 1<br>Stage 2                       | OFF, 11~120V/1V                                                                                                                                                                                                                                                                                                                                                           | Definite                             | 0.050~300.000s/0.001s                                       | -                      | All 3 phase voltage must be over 5V.                                     |
| POR (47)           | Stage 1<br>Stage 2                       | OFF, 2.0~100%/1%                                                                                                                                                                                                                                                                                                                                                          | Definite                             | 0.050~300.000s/0.001s                                       | -                      | -                                                                        |
| Synchro-check (25) | Stage 1                                  | V Diff: OFF, 2~50V/1V<br>Phase Diff: OFF, 5~45°/1°<br>F Diff: 0.01~0.50/0.01Hz<br>Dead V: 0.2~0.4Vn/0.01Vn                                                                                                                                                                                                                                                                | -                                    | 1sec and below                                              | -                      | 0.5Vn~1.2Vn                                                              |
| Temperature (38)   | Stage 1<br>Stage 2                       | OFF, 20~180°C/1°C                                                                                                                                                                                                                                                                                                                                                         | Definite                             | 0.050~300.000s/0.001s                                       | -                      | -                                                                        |
| UFR (81U)          | Stage 1<br>Stage 2<br>Stage 3<br>Stage 4 | 50Hz: off, 50~60Hz/0.05Hz<br>Block: 0.50~0.90Vn/0.01Vn                                                                                                                                                                                                                                                                                                                    | Definite                             | 0.100~300.000s/0.001s                                       | -                      | PT #1 or PT #5                                                           |
| OFR (81O)          | Stage 1<br>Stage 2<br>Stage 3<br>Stage 4 | 50Hz: off, 50~60Hz/0.05Hz<br>Block: 0.50~0.90Vn/0.01Vn                                                                                                                                                                                                                                                                                                                    | Definite                             | 0.100~300.000s/0.001s                                       | -                      |                                                                          |
| DPR (32P)          | Stage 1<br>Stage 2                       | OFF, 0.01~1.50Pn/0.01Pn<br>(Forward, Reverse)                                                                                                                                                                                                                                                                                                                             | Definite                             | 0.100~300.000s/0.001s                                       | -                      | -                                                                        |
| DQR (32Q)          | Stage 1<br>Stage 2                       | OFF, 0.02~1.50Qn/0.01Qn<br>(Forward, Reverse)                                                                                                                                                                                                                                                                                                                             | Definite                             | 0.100~300.000s/0.001s                                       | -                      | -                                                                        |
| DOCR (67I)         | Stage 1<br>Stage 2                       | OFF, 0.10~32.00In/0.01In<br>Characteristics angle: 0~±90°/1°<br>Operating range: 60~87°/1°<br>Forward/Reverse                                                                                                                                                                                                                                                             | Instantaneous<br>Definite            | 45msec and below<br>0.050~300.000s/0.001s                   | -                      | -                                                                        |
| DOCR (67D)         | Stage 1<br>Stage 2                       | OFF, 0.02~10.00In/0.01In<br>V(a-b), V(b-c), V(c-a)<br>Characteristics angle: 0~±90°/1°<br>Operating range: 60~87°/1°<br>Forward/Reverse                                                                                                                                                                                                                                   | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.20/0.01                     | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                          |
| NSOCR (46I)        | Stage 1<br>Stage 2                       | OFF, 0.1~2.0/0.01In                                                                                                                                                                                                                                                                                                                                                       | Instantaneous<br>Definite            | 50msec and below<br>0.050~300.000s/0.001s                   | -                      | -                                                                        |
| NSOCR (46D)        | Stage 1<br>Stage 2                       | OFF, 0.05~2.00/0.01In                                                                                                                                                                                                                                                                                                                                                     | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.20/0.01                     | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI                                         |
| Reclosing (79)     | Stage 1                                  | Reclosing counts: 1 ~ 5 times<br>• Prepare Timer: 0.020 s ~ 60.000 s (0.001 s)<br>• Dead Timer: 5, 0.060 s ~ 300.000 s (0.001 s)<br>• CB Operation Timer: 0.05 s ~ 0.500 s (0.001 s)<br>• Reclaim Time: 1.000 s ~ 300.000 s (0.001 s)<br>• Scheme: Dead Bus-Dead Line, Dead Bus-Live Line, Live Bus-Dead Line, Live Bus-Live Line<br>• Dead: 0 ~ 0.1Vn<br>• Live: 0.5Vn ~ |                                      |                                                             |                        |                                                                          |

Note) The operating time is based on 60Hz.

\* In case of using vector sum it will be operated in 50ms



# Characteristics

## X GIPAM - T

| Protection          | Operating part | Setting range                                                                                                                                                                        | Operating characteristics | Operating time <small>Note)</small>       | Delay time             | Remarks                                         |
|---------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------|------------------------|-------------------------------------------------|
| OCR-1(50)           | Stage 1        | OFF, 0.10~32.00In/0.01In                                                                                                                                                             | Instantaneous             | 30msec and below<br>0.050~300.000s/0.001s | -                      | -                                               |
|                     | Stage 2        |                                                                                                                                                                                      | Definite                  |                                           |                        |                                                 |
| OCR-1(51)           | Stage 1        | OFF, 0.02~10.00In/0.01In                                                                                                                                                             | Definite                  | 0.050~300.000s/0.001s<br>0.05~1.2/0.01    | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI |
|                     | Stage 2        |                                                                                                                                                                                      | Inverse                   |                                           |                        |                                                 |
| OCGR (50N)          | Stage 1        | OFF, 0.1~32.00In/0.01In                                                                                                                                                              | Instantaneous             | 30msec and below<br>0.050~300.000s/0.001s | -                      | -                                               |
|                     | Stage 2        |                                                                                                                                                                                      | Definite                  |                                           |                        |                                                 |
| OCGR (51N)          | Stage 1        | OFF, 0.02~10.00In/0.01In                                                                                                                                                             | Definite                  | 0.050~300.000s/0.001s<br>0.05~1.2/0.01    | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI |
|                     | Stage 2        |                                                                                                                                                                                      | Inverse                   |                                           |                        |                                                 |
| OCR-2 (50)          | Stage 1        | OFF, 0.10~32.00In/0.01In                                                                                                                                                             | Instantaneous             | 30msec and below<br>0.050~300.000s/0.001s | -                      | -                                               |
|                     | Stage 2        |                                                                                                                                                                                      | Definite                  |                                           |                        |                                                 |
| OCR-2 (51)          | Stage 1        | OFF, 0.02~10.00In/0.01In                                                                                                                                                             | Definite                  | 0.050~300.000s/0.001s<br>0.05~1.2/0.01    | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI |
|                     | Stage 2        |                                                                                                                                                                                      | Inverse                   |                                           |                        |                                                 |
| UVR (27)            | Stage 1        | OFF, 0.10~1.10Vn/0.01Vn<br>Auto Reset: Enable/Disable<br>Dead Voltage: Enable/Disable                                                                                                | Definite                  | 0.050~300.000s/0.001s                     | -                      | Dead Voltage Block:<br>0.05Vn                   |
|                     | Stage 2        |                                                                                                                                                                                      |                           |                                           |                        |                                                 |
| OVR (59)            | Stage 1        | OFF, 0.80~1.60Vn/0.01                                                                                                                                                                | Definite                  | 0.050~300.000s/0.001s<br>0.01~1.20/0.01   | -<br>0~300.000s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/EI                |
|                     | Stage 2        |                                                                                                                                                                                      | Inverse                   |                                           |                        |                                                 |
| DPR (32P)           | Stage 1        | OFF, 0.01~1.50Pn/0.01Pn<br>(Forward, Reverse)                                                                                                                                        | Definite                  | 0.100~300.000s/0.001s                     | -                      | -                                               |
|                     | Stage 2        |                                                                                                                                                                                      |                           |                                           |                        |                                                 |
| Temperature<br>(38) | Stage 1        | OFF, 20~180℃/1℃                                                                                                                                                                      | Definite                  | 0.050~300.000s/0.001s                     | -                      | -                                               |
|                     | Stage 2        |                                                                                                                                                                                      |                           |                                           |                        |                                                 |
| DFR (87T)           | Stage 1        | OFF, 2~32 In/0.01In                                                                                                                                                                  |                           |                                           | 40ms and below         | -                                               |
|                     | Stage 2        | OFF, 0.2~1.0In/0.01In<br>• Slope 1: 15~100%/1%<br>• Slope 2: 15~100%/1%<br>• Knee Point: 1.0~20.0In/0.1In<br>• Inrush Inhibit:<br>ON (5~50%/1%)<br>: OFF<br>• Io Elimination: ON/OFF | Definite                  | -                                         | 0, 0.05~300s/0.001s    | -                                               |

Note) The operating time is based on 60Hz.

## X GIPAM - DG

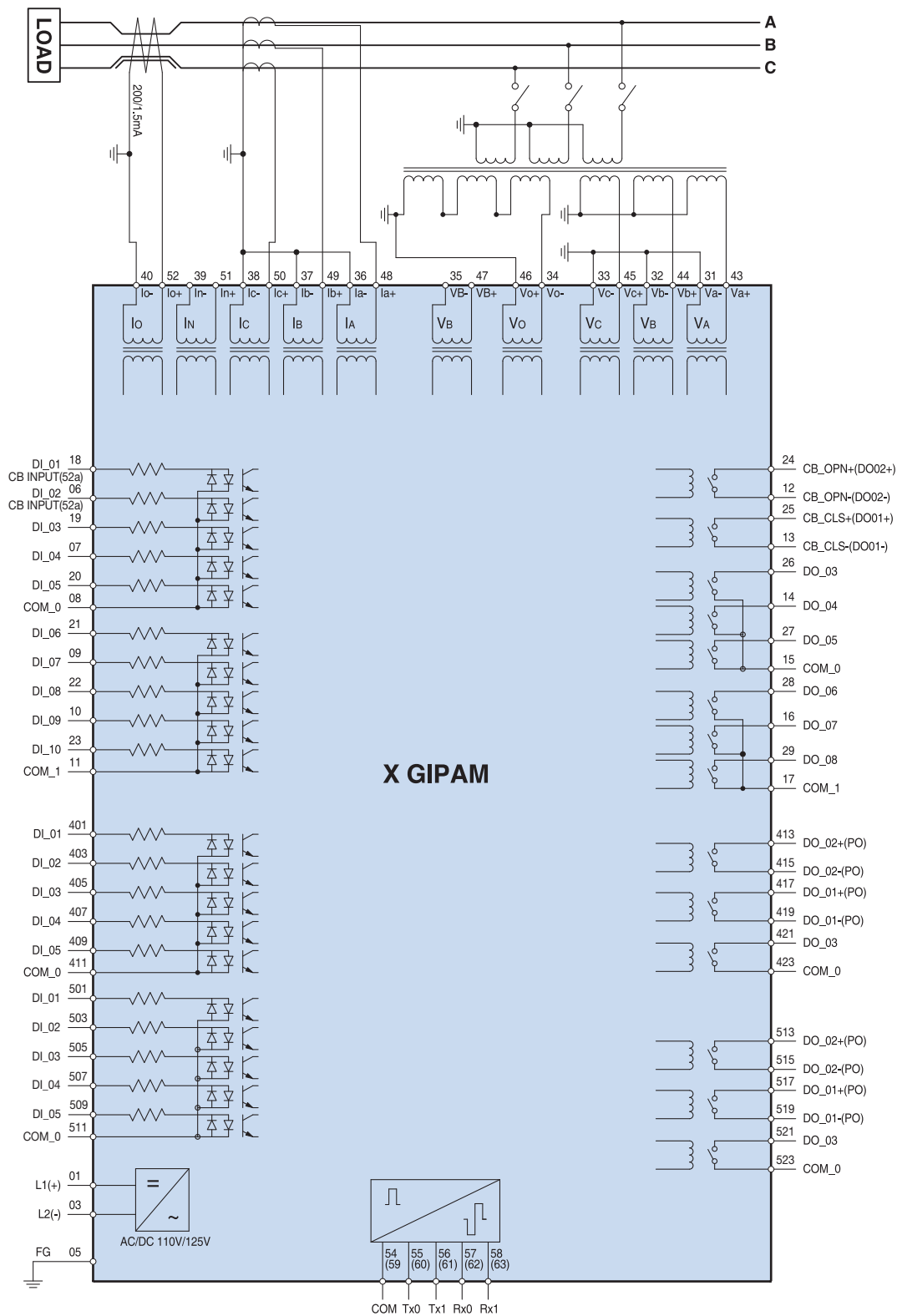
| Protection            | Operating part | Setting range                                                                                                                                           | Operating characteristics            | Operating time <sup>Note)</sup>                                                | Delay time       | Remarks                                                                       |
|-----------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------|
| OCR (50)              | Stage 1        | OFF, 0.10~32.00In/0.01In                                                                                                                                | Instantaneous<br>Definite            | 30msec and below<br>0.050~300.000s/0.001s                                      | -                | -                                                                             |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| OCR (51)              | Stage 1        | OFF, 0.02~10.00In/0.01In                                                                                                                                | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.2/0.01                                         | -                | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                               |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| OCGR (50N)            | Stage 1        | OFF, 0.1~32.00In/0.01In                                                                                                                                 | Instantaneous<br>Definite            | 30msec and below<br>0.050~300.000s/0.001s                                      | -                | -                                                                             |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| OCGR (51N)            | Stage 1        | OFF, 0.02~10.00In/0.01In                                                                                                                                | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.2/0.01                                         | -                | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                               |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| DGR (67N)             | Stage 1        | OFF, 0.02~10.00In/0.01In<br>Vo : 8~80V/1V<br>Characteristics angle:<br>0~±90°/1°, 270~359°/1°<br>Operating range: 60~87°/1°                             | Instantaneous<br>Definite<br>Inverse | 45msec and below<br>0.050~300.000s/0.001s<br>0.05~1.2/0.01                     | -                | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                               |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| SGR (67G)             | Stage 1        | OFF, 0.6~6.0mA/0.1mA<br>Vo : 0V, 8V~80V/1V<br>Characteristics angle:<br>0~±90°/1°, 270~359°/1°                                                          | Definite                             | 0.050~10.000s/0.001s                                                           | -                | If the zero phase voltage<br>is set to 0, the zero<br>phase current will act. |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| UVR (27)              | Stage 1        | OFF, 0.10~1.10Vn/0.01Vn<br>Auto Reset: Enable/Disable<br>Dead Voltage: Enable/Disable                                                                   | Definite                             | 0.050~300.000s/0.001s                                                          | -                | Dead Voltage Block:<br>0.05Vn                                                 |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| OVR (59)              | Stage 1        | OFF, 0.80~1.60Vn/0.01                                                                                                                                   | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.01~1.20/0.01                                        | -                | IEC SI/VI/EI/LI<br>ANSI SI/VI/EI                                              |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| OVGR (64I)            | Stage 1        | OFF, 5~80V/1V                                                                                                                                           | Instantaneous<br>Definite            | 30msec and below<br>0.050~300.000s/0.001s                                      | -                | -                                                                             |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| OVGR (64D)            | Stage 1        | OFF, 5~80V/1V                                                                                                                                           | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.20/0.01                                        | 0~300.00s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/EI                                              |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| NSOVR (47N)           | Stage 1        | OFF, 11~120V/1V                                                                                                                                         | Definite                             | 0.050~300.000s/0.001s                                                          | -                | -                                                                             |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| POR (47)              | Stage 1        | OFF, 2.0~100%/1%                                                                                                                                        | Definite                             | 0.050~300.000s/0.001s                                                          | -                | All 3 phase voltage<br>must be over 5V.                                       |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| DPR (32P)             | Stage 1        | OFF, 0.01 ~ 1.50Pn/0.01Pn<br>Forward/Reverse                                                                                                            | Definite                             | 0.100~300.000s/0.001s                                                          | -                | -                                                                             |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| DPR (32P)             | Stage 1        | OFF, 0.01~1.50Pn/0.01Pn<br>(Forward/Reverse)                                                                                                            | Definite                             | 0.100~300.000s/0.001s                                                          | -                | -                                                                             |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| DQR (32Q)             | Stage 1        | OFF, 0.01~1.50Qn/0.01Qn<br>(Forward/Reverse)                                                                                                            | Definite                             | 0.100~300.000s/0.001s                                                          | -                | Qa=IaVasin(θ),<br>Qa=Ia(Vb-Vc)                                                |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| Synchro-check<br>(25) | Stage 1        | V Diff : OFF, 2~50V/1V<br>Phase Diff : OFF, 5 ~ 45/1°<br>F Diff : 0.01~0.50/0.01Hz<br>Dead V : 0.2 ~ 0.4Vn/0.01Vn                                       | -                                    | After the synchronous<br>condition are satisfied,<br>it operation within 1sec. | -                | Dead Voltage Block:<br>0.5Vn ~1.2Vn                                           |
| DOCR (67I)            | Stage 1        | OFF, 0.10~32.00In/0.01In<br>Characteristics angle:<br>0~±90°/1°, 270~359°/1°<br>Operating range: 60~87°/1°<br>Forward/Reverse                           | Instantaneous<br>Definite            | 45msec and below<br>0.050~300.000s/0.001s                                      | -                | -                                                                             |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| DOCR (67D)            | Stage 1        | OFF, 0.02~10.00In/0.01In<br>V(a-b), V(b-c), V(c-a)<br>Characteristics angle:<br>0~±90°/1°, 270~359°/1°<br>Operating range: 60~87°/1°<br>Forward/Reverse | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.20/0.01                                        | 0~300.00s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/LI<br>KEPCO SI/VI                               |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| UFR (81U)             | Stage 1        | OFF, 50~60Hz/0.05Hz<br>Block : 0.50~0.90Vn/0.01Vn                                                                                                       | Definite                             | 0.100~300.000s/0.001s                                                          | -                | PT #1 or PT #5                                                                |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
|                       | Stage 3        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
|                       | Stage 4        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| OFR (81O)             | Stage 1        | OFF, 60~70Hz/0.05Hz<br>Block : 0.50~0.90Vn/0.01Vn                                                                                                       | Definite                             | 0.100~300.000s/0.001s                                                          | -                |                                                                               |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
|                       | Stage 3        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
|                       | Stage 4        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| NSOCR (46I)           | Stage 1        | OFF, 0.1~2.0/0.01In                                                                                                                                     | Instantaneous<br>Definite            | 50msec and below<br>0.050~300.000s/0.001s                                      | -                | -                                                                             |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| NSOCR (46D)           | Stage 1        | OFF, 0.05~2.00/0.01In                                                                                                                                   | Definite<br>Inverse                  | 0.050~300.000s/0.001s<br>0.05~1.20/0.01                                        | 0~300.00s/0.001s | IEC SI/VI/EI/LI<br>ANSI SI/VI/EI                                              |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| UPR (37P)             | Stage 1        | OFF, 0.02~0.80Pn/0.01Pn                                                                                                                                 | Definite                             | 0.10~300.00/0.001s                                                             | -                | -                                                                             |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
| ROCOF (81R)           | Stage 1        | 0.1~2.0/0.1Hz/s<br>UV Block : 50~100/1V                                                                                                                 | Definite                             | 0.2~60.0/0.001s                                                                | -                | -                                                                             |
|                       | Stage 2        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
|                       | Stage 3        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |
|                       | Stage 4        |                                                                                                                                                         |                                      |                                                                                |                  |                                                                               |

Note) The operating time is based on 60Hz.

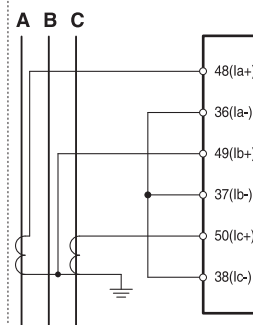
\* In case of using vector sum it will be operated in 50ms

# Wiring

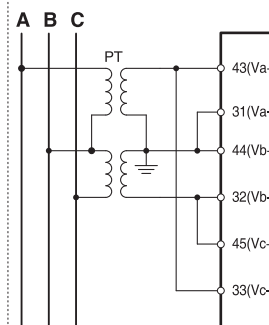
## X GIPAM-F/B/DG (3P3W)



### 2CT APPLY

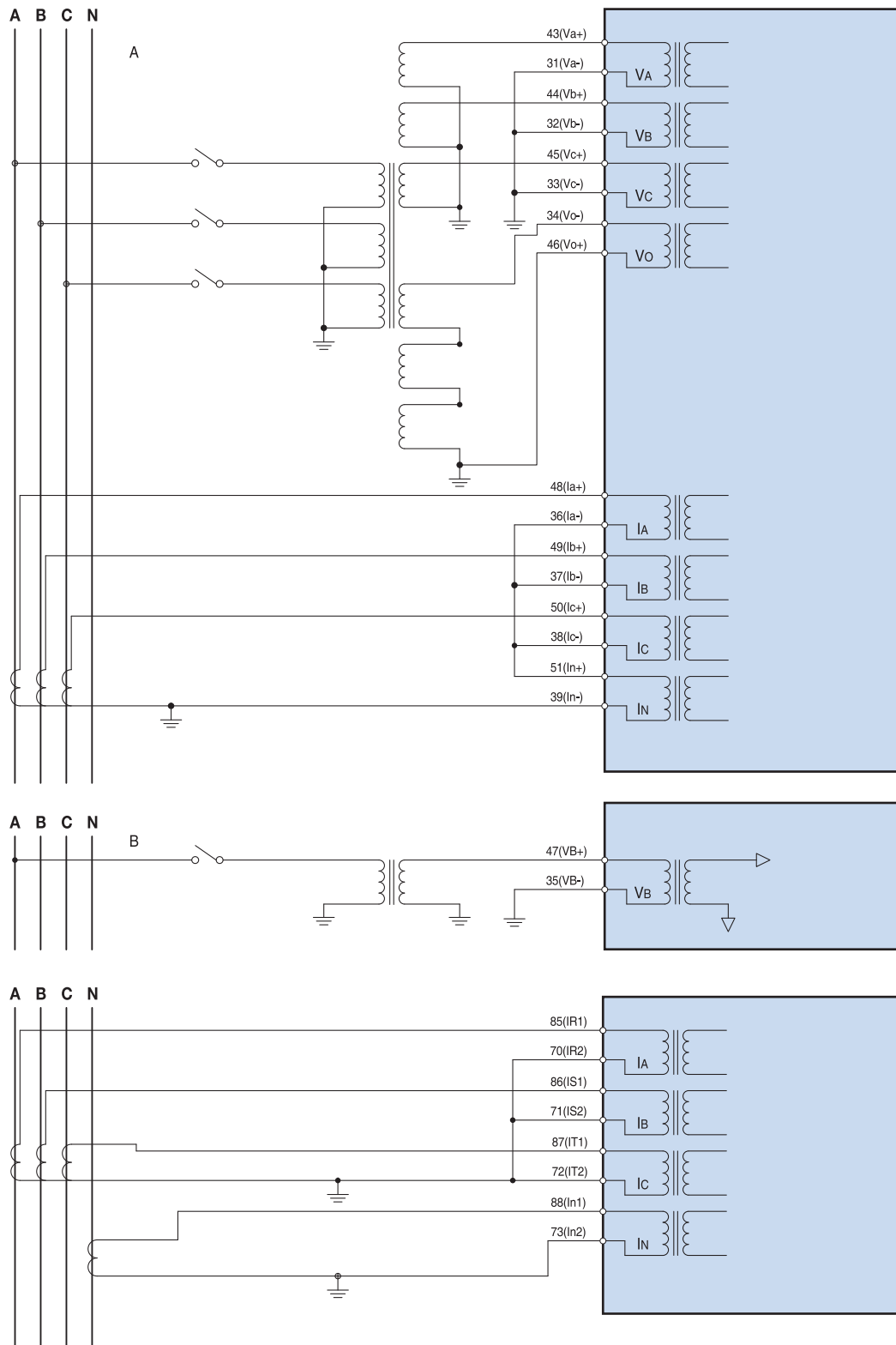


### 2CT APPLY OPEN DELTA Wiring



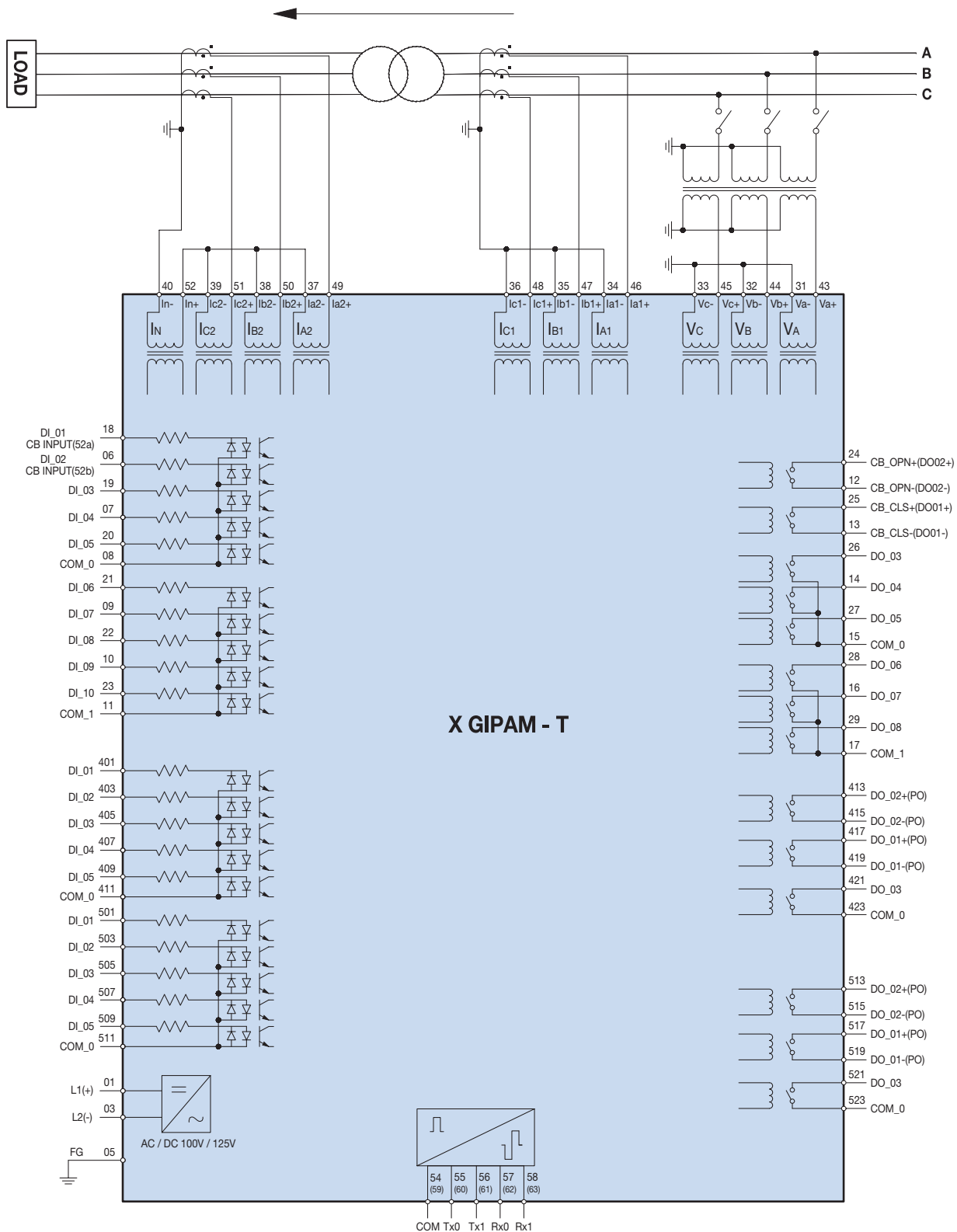
Note) For example is number 413 described number 13 in solt#4

# X GIPAM-F/B/DG (3P4W)





## X GIPAM-T



Note) For example is number 413 described number 13 in solt#4

## X GIPAM-F Contact Usage

| Comm |        | Extended Comm           |        | CT/PT |          | Slot#2         |       | Slot#3         |       | Slot#4 |            | Slot#5 |            | Slot#6         |            | Slot#7 |                 |                 |       |
|------|--------|-------------------------|--------|-------|----------|----------------|-------|----------------|-------|--------|------------|--------|------------|----------------|------------|--------|-----------------|-----------------|-------|
| 54   | COM A  |                         |        |       |          | 201            | AI01+ | 301            | AI01+ | 401    | DI01       | 501    | DI01       | 601            | DI01       |        |                 |                 |       |
| 55   | TxD0 A | 64                      | FX RxA | 42    | BLK      | 202            | AI01- | 302            | AI01- | 402    |            | 502    |            | 602            |            | 18     | DI01            | DI02            |       |
| 56   | TxD1 A | 65                      | FX TxA | 43    | Va+      | 203            | AI02+ | 303            | AI02+ | 403    | DI02       | 503    | DI02       | 603            | DI02       | 19     | DI03            | DI04            |       |
| 57   | RxD0 A | 66                      | FX RxB | 44    | Vb+      | 204            | AI02- | 304            | AI02- | 404    |            | 504    |            | 604            |            | 20     | DI05            | COM0            |       |
| 58   | RxD1 A | 67                      | FX TxB | 45    | Vc+      | 205            | AI03+ | 305            | AI03+ | 405    | DI03       | 505    | DI03       | 605            | DI03       | 21     | DI06            | DI07            |       |
|      |        |                         |        | 46    | Vo+      | 206            | AI03- | 306            | AI03- | 406    |            | 506    |            | 606            |            | 22     | DI08            | DI09            |       |
| 59   | COM B  |                         |        | 47    | VB(27R)+ | 207            | AI04+ | 307            | AI04+ | 407    | DI04       | 507    | DI04       | 607            | DI04       | 23     | DI10            | COM1            |       |
| 60   | TxD0 B |                         |        | 48    | Ia+      | 208            | AI04- | 308            | AI04- | 408    |            | 508    |            | 608            |            | 24     | CB OFF+ (DO02+) | CB OFF- (DO02-) |       |
| 61   | TxD1 B |                         |        | 49    | Ib+      | 209            | AI05+ | 309            | AI05+ | 409    | DI05       | 509    | DI05       | 609            | DI05       | 25     | CB ON+ (DO01+)  | CB ON- (DO01-)  |       |
| 62   | RxD0 B |                         |        | 50    | Ic+      | 210            | AI05- | 310            | AI05- | 410    |            | 510    |            | 610            |            | 26     | DO03            | DO04            |       |
| 63   | RxD1 B |                         |        | 51    | In+      | 211            | AI06+ | 311            | AI06+ | 411    | COM0       | 511    | COM0       | 611            | COM0       | 27     | DO05            | COM0            |       |
|      |        |                         |        | 52    | Io+      | 212            | AI06- | 312            | AI06- | 412    |            | 512    |            | 612            |            | 28     | DO06            | DO07            |       |
|      |        | 68                      | LAN A  |       |          | 213            | AO01+ | 313            | AO01+ | 413    | DO02+ (P0) | 513    | DO02+ (P0) | 613            | DO02+ (P0) | 29     | DO08            | COM1            |       |
|      |        | 69                      | LAN B  |       |          | 214            | AO01- | 314            | AO01- | 414    |            | 514    |            | 614            |            |        |                 |                 |       |
|      |        |                         |        |       |          | 215            | AO02+ | 315            | AO02+ | 415    | DO02- (P0) | 515    | DO02- (P0) | 615            | DO02- (P0) |        |                 |                 |       |
|      |        |                         |        |       |          | 216            | AO02- | 316            | AO02- | 416    |            | 516    |            | 616            |            |        |                 |                 |       |
|      |        |                         |        |       |          | 217            | AO03+ | 317            | AO03+ | 417    | DO01+ (P0) | 517    | DO01+ (P0) | 617            | DO01+ (P0) |        |                 |                 |       |
|      |        |                         |        |       |          | 218            | AO03- | 318            | AO03- | 418    |            | 518    |            | 618            |            |        |                 |                 |       |
|      |        |                         |        |       |          | 219            | AO04+ | 319            | AO04+ | 419    | DO01- (P0) | 519    | DO01- (P0) | 619            | DO01- (P0) |        |                 |                 |       |
|      |        |                         |        |       |          | 220            | AO04- | 320            | AO04- | 420    |            | 520    |            | 620            |            |        |                 |                 |       |
|      |        |                         |        |       |          | 221            |       | 321            |       | 421    | DO03       | 521    | DO03       | 621            | DO03       |        |                 |                 |       |
|      |        |                         |        |       |          | 222            |       | 322            |       | 422    |            | 522    |            | 622            |            |        |                 |                 |       |
|      |        |                         |        |       |          | 223            |       | 323            |       | 423    | COM0       | 523    | COM0       | 623            | COM0       |        |                 |                 |       |
|      |        |                         |        |       |          | 224            |       | 324            |       | 424    |            | 524    |            | 624            |            |        |                 |                 |       |
| Main |        | Extention Comm (Option) |        | CT/PT |          | AI/AO (Option) |       | AI/AO (Option) |       | DI/DO  |            | DI/DO  |            | DI/DO (Option) |            | DI/DO  |                 |                 | POWER |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |
|      |        |                         |        |       |          |                |       |                |       |        |            |        |            |                |            |        |                 |                 |       |

# Contact and Logic usage

## X GIPAM-T Contact Usage

| Comm |        | Extended Comm           |        | CT/PT |      | Slot#2         |     | Slot#3         |       | Slot#4 |       | Slot#5 |            | Slot#6         |            | Slot#7 |            |                 |       |
|------|--------|-------------------------|--------|-------|------|----------------|-----|----------------|-------|--------|-------|--------|------------|----------------|------------|--------|------------|-----------------|-------|
| 54   | COM A  |                         |        |       |      |                | 201 | AI01+          | 301   | AI01+  | 401   | DI01   | 501        | DI01           | 601        | DI01   |            |                 |       |
| 55   | TxD0 A | 64                      | FX RxA | 42    | BLK  | BLK            | 30  | 202            | AI01- | 302    | AI01- | 402    | 502        | 502            | 602        |        | 18         | DI01            |       |
| 56   | TxD1 A | 65                      | FX TxA |       |      |                |     | 203            | AI02+ | 303    | AI02+ | 403    | DI02       | 503            | DI02       | 603    | DI02       | DI02            |       |
| 57   | RxD0 A | 66                      | FX RxB | 43    | Va+  | Va-            | 31  | 204            | AI02- | 304    | AI02- | 404    | 504        | 504            | 604        |        | 19         | DI03            |       |
| 58   | RxD1 A | 67                      | FX TxB |       |      |                |     | 205            | AI03+ | 305    | AI03+ | 405    | DI03       | 505            | DI03       | 605    | DI03       | DI04            |       |
|      |        |                         |        | 44    | Vb+  | Vb-            | 32  | 206            | AI03- | 306    | AI03- | 406    | 506        | 506            | 606        |        | 20         | DI05            |       |
|      |        |                         |        |       |      |                |     | 207            | AI04+ | 307    | AI04+ | 407    | DI04       | 507            | DI04       | 607    | DI04       | COM0            |       |
| 59   | COM B  |                         |        | 45    | Vc+  | Vc-            | 33  | 208            | AI04- | 308    | AI04- | 408    | 508        | 508            | 608        |        | 21         | DI06            |       |
| 60   | TxD0 B |                         |        |       |      |                |     | 209            | AI05+ | 309    | AI05+ | 409    | DI05       | 509            | DI05       | 609    | DI05       | DI07            |       |
| 61   | TxD1 B |                         |        | 46    | Ia1+ | Ia1-           | 34  | 210            | AI05- | 310    | AI05- | 410    | 510        | 510            | 610        |        | 22         | DI08            |       |
| 62   | RxD0 B |                         |        |       |      |                |     | 211            | AI06+ | 311    | AI06+ | 411    | COM0       | 511            | COM0       | 611    | COM0       | DI09            |       |
| 63   | RxD1 B |                         |        | 47    | Ib1+ | Ib1-           | 35  | 212            | AI06- | 312    | AI06- | 412    |            | 512            |            | 612    |            | DI09            |       |
|      |        | 68                      | LAN A  |       |      |                |     |                |       |        |       |        |            |                |            |        | 23         | DI10            |       |
|      |        | 69                      | LAN B  |       |      |                |     |                |       |        |       |        |            |                |            |        |            | COM1            |       |
|      |        |                         |        | 48    | Ic1+ | Ic1-           | 36  | 213            | AO01+ | 313    | AO01+ | 413    | DO02+ (P0) | 513            | DO02+ (P0) | 613    | DO02+ (P0) | CB OFF+ (DO02+) |       |
|      |        |                         |        |       |      |                |     | 214            | AO01- | 314    | AO01- | 414    |            | 514            |            | 614    |            | CB OFF- (DO02-) |       |
|      |        |                         |        | 49    | Ia2+ | Ia2-           | 37  | 215            | AO02+ | 315    | AO02+ | 415    | DO02- (P0) | 515            | DO02- (P0) | 615    | DO02- (P0) | CB ON+ (DO01+)  |       |
|      |        |                         |        |       |      |                |     | 216            | AO02- | 316    | AO02- | 416    |            | 516            |            | 616    |            | CB ON- (DO01-)  |       |
|      |        |                         |        | 50    | Ib2+ | Ib2-           | 38  | 217            | AO03+ | 317    | AO03+ | 417    | DO01+ (P0) | 517            | DO01+ (P0) | 617    | DO01+ (P0) |                 |       |
|      |        |                         |        |       |      |                |     | 218            | AO03- | 318    | AO03- | 418    |            | 518            |            | 618    |            | DO03            |       |
|      |        |                         |        | 51    | Ic2+ | Ic2-           | 39  | 219            | AO04+ | 319    | AO04+ | 419    | DO01- (P0) | 519            | DO01- (P0) | 619    | DO01- (P0) | DO04            |       |
|      |        |                         |        |       |      |                |     | 220            | AO04- | 320    | AO04- | 420    |            | 520            |            | 620    |            | COM0            |       |
|      |        |                         |        | 52    | In+  | In-            | 40  | 221            |       | 321    |       | 421    | DO03       | 521            | DO03       | 621    | DO03       |                 |       |
|      |        |                         |        |       |      |                |     | 222            |       | 322    |       | 422    |            | 522            |            | 622    |            | DO06            |       |
|      |        |                         |        |       |      |                |     | 223            |       | 323    |       | 423    | COM0       | 523            | COM0       | 623    | COM0       | DO07            |       |
|      |        |                         |        | 53    | BLK  | BLK            | 41  | 224            |       | 324    |       | 424    |            | 524            |            | 624    |            | DO08            |       |
|      |        |                         |        |       |      |                |     |                |       |        |       |        |            |                |            |        |            | COM1            |       |
| Main |        | Extention Comm (Option) |        | CT/PT |      | AI/AO (Option) |     | AI/AO (Option) |       | DI/DO  |       | DI/DO  |            | DI/DO (Option) |            | DI/DO  |            |                 | POWER |

FG

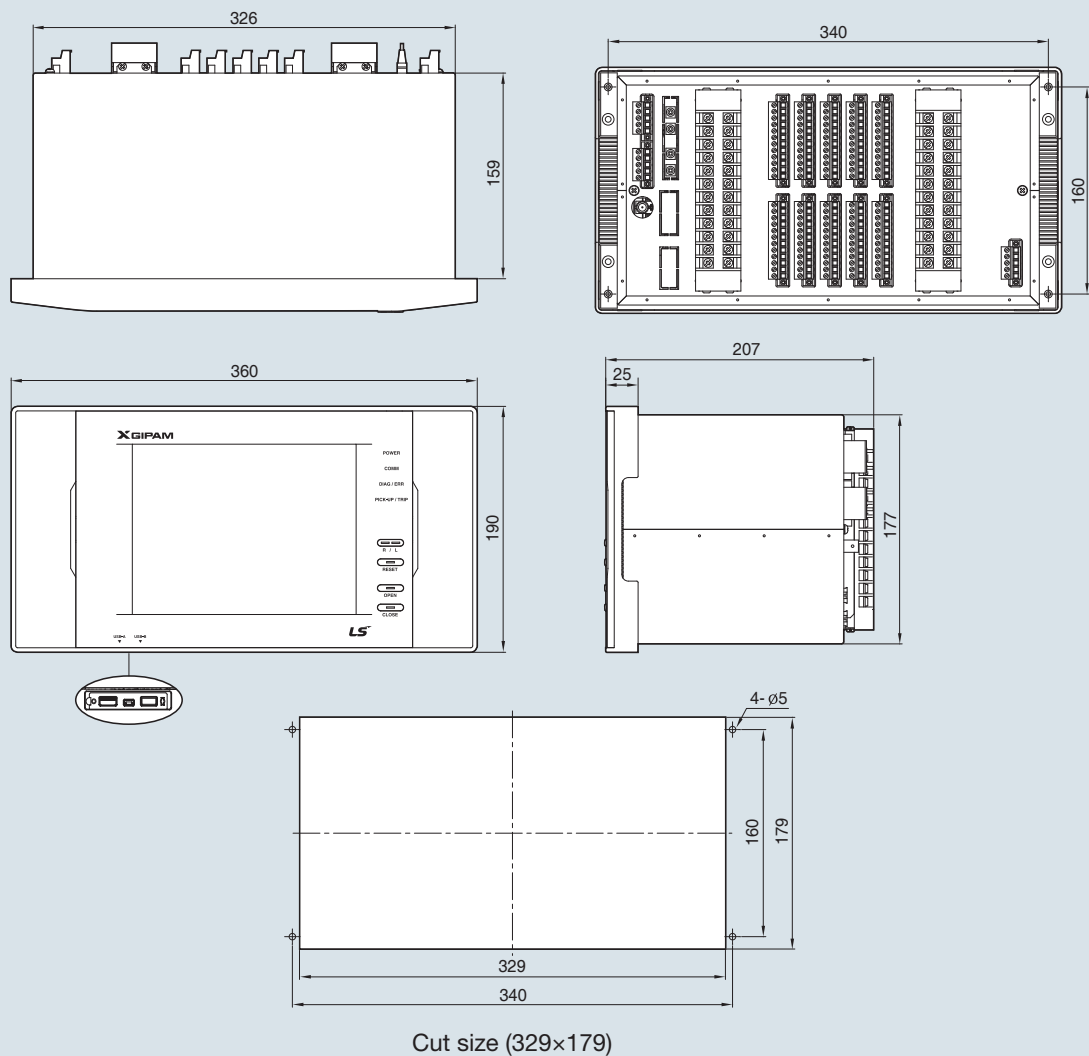
01 L1/+  
02  
03 L2/-  
04  
05 FG

FG

## X GIPAM-T Logic Usage

|        | T type basic DIO (Slot_4, 5, 7) |       |       |                  |       | T type DIO 1ea expansion (Slot_4, 5, 6, 7) |       |       |                  |       |
|--------|---------------------------------|-------|-------|------------------|-------|--------------------------------------------|-------|-------|------------------|-------|
| Slot 7 | DI 01                           | SW1_A | DO 01 | SW1_Close        | •     | DI 01                                      | SW1_A | DO 01 | SW1_Close        | •     |
|        | DI 02                           | SW1_B | DO 02 | SW1_Open         | •     | DI 02                                      | SW1_B | DO 02 | SW1_Open         | •     |
|        | DI 03                           | •     | DO 03 | DPR              | CC 06 | DI 03                                      | •     | DO 03 | DPR              | CC 06 |
|        | DI 04                           | •     | DO 04 | OCR (Secondary)  | CC 07 | DI 04                                      | •     | DO 04 | OCR (Secondary)  | CC 07 |
|        | DI 05                           | •     | DO 05 | TPR(38)          | CC 08 | DI 05                                      | •     | DO 05 | TPR(38)          | CC 08 |
|        | DI 06                           | •     | DO 06 | Extra fault      | CC 09 | DI 06                                      | •     | DO 06 | Extra fault      | CC 09 |
|        | DI 07                           | •     | DO 07 | 86X              | •     | DI 07                                      | •     | DO 07 | 86X              | •     |
|        | DI 08                           | •     | DO 08 | Buzzer           | CC 10 | DI 08                                      | •     | DO 08 | Buzzer           | CC 10 |
|        | DI 09                           | •     |       |                  |       | DI 09                                      | •     |       |                  |       |
|        | DI 10                           | •     |       |                  |       | DI 10                                      | •     |       |                  |       |
| Slot 6 | OPTION                          |       |       |                  |       | DI 01                                      | SW2_A | DO 01 | SW2_Close        | •     |
|        |                                 |       |       |                  |       | DI 02                                      | SW2_B | DO 02 | SW2_Open         | •     |
|        |                                 |       |       |                  |       | DI 03                                      | •     | DO 03 | •                | •     |
|        |                                 |       |       |                  |       | DI 04                                      | •     |       |                  |       |
|        |                                 |       |       |                  |       | DI 05                                      | •     |       |                  |       |
| Slot 5 | DI 01                           | •     | DO 01 | OVR              | CC 04 | DI 01                                      | •     | DO 01 | OVR              | CC 04 |
|        | DI 02                           | •     | DO 02 | DPR              | CC 05 | DI 02                                      | •     | DO 02 | DPR              | CC 05 |
|        | DI 03                           | •     | DO 03 | Power fail       | •     | DI 03                                      | •     | DO 03 | Power fail       | •     |
|        | DI 04                           | •     |       |                  |       | DI 04                                      | •     |       |                  |       |
|        | DI 05                           | •     |       |                  |       | DI 05                                      | •     |       |                  |       |
| Slot 4 | DI 01                           | •     | DO 01 | OCR (Primary)    | CC 01 | DI 01                                      | •     | DO 01 | OCR (Primary)    | CC 01 |
|        | DI 02                           | •     | DO 02 | OCGR / SGR / DGR | CC 02 | DI 02                                      | •     | DO 02 | OCGR / SGR / DGR | CC 02 |
|        | DI 03                           | •     | DO 03 | UVR              | CC 03 | DI 03                                      | •     | DO 03 | UVR              | CC 03 |
|        | DI 04                           | •     |       |                  |       | DI 04                                      | •     |       |                  |       |
|        | DI 05                           | •     |       |                  |       | DI 05                                      | •     |       |                  |       |

## Dimensions (with integrated HMI)



## Ordering

|                  |                            |               |                        |          |                  |                          |             |                   |                     |                    |                  |
|------------------|----------------------------|---------------|------------------------|----------|------------------|--------------------------|-------------|-------------------|---------------------|--------------------|------------------|
| <b>X GIPAM</b>   |                            | <b>F</b>      | <b>RS</b>              | <b>M</b> | <b>s4DI s7TI</b> | <b>5A</b>                | <b>60Hz</b> | <b>DC100~125V</b> | <b>DI_AC/DC110V</b> |                    |                  |
| Protection relay |                            | Communication |                        | Protocol |                  | Slot specific mode info. |             | CT rating         | Frequency           | Control power      | DI Input voltage |
| F                | Feeder, Incoming Motor/NCT | RS            | RS-485                 | M        | MODBUS           | s4DI                     | Slot#4 DI/O | 5A                | 60Hz                | AC100V, DC110~125V | AC/DC 110V       |
| B                | BAY                        | TE            | 100/10 BASE-T Ethernet |          |                  | s5DI                     | Slot#5 DI/O |                   | 50Hz                |                    |                  |
| T                | Transformer                |               |                        |          |                  | s6DI                     | Slot#6 DI/O |                   |                     |                    |                  |
| DG               | Distributed Generator      |               |                        |          |                  | s7DI                     | Slot#7 DI/O |                   |                     |                    |                  |

Note) 1. F/T model: s4DI, s5DI, s7TI (Fixed)

Note) 1. F/T model: s4DI, s5DI, s7TI (Fixed)  
2. B/DG model: s4DI, s5DI, s6DI, s7TI (Fixed)

## CERTIFICATE OF COMPLIANCE

**Certificate Number** 20170720-E486452  
**Report Reference** E486452-20170719  
**Issue Date** 2017-JULY-20

**Issued to:** LSIS CO LTD  
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Cheongju-si Chungcheongbuk-do 361-720 KOREA

**This is to certify that  
representative samples of**

**PROTECTIVE RELAYS**  
Protective relay, open type, XGIPAM series with prefixes F,  
B, T, or DG, followed by suffixes.

Have been investigated by UL in accordance with the  
Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** UL 508 - Industrial Control Equipment  
CSA C22.2 No. 14-13 - Industrial Control Equipment  
UL 1053 - STANDARD FOR GROUND-FAULT SENSING  
AND RELAYING EQUIPMENT

**Additional Information:** See the UL Online Certifications Directory at  
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Only those products bearing the UL Certification Mark should be considered as being covered by UL's  
Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

*B. Mahlen*

Bruce Mahlenholz, Director North American Certification Program  
UL LLC

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#### Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance.  
Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.



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