

# SANUPS

PARALLEL PROCESSING UPS

# E23A



**SANYO DENKI**



# Low energy, high quality, high reliability parallel processing type UPS

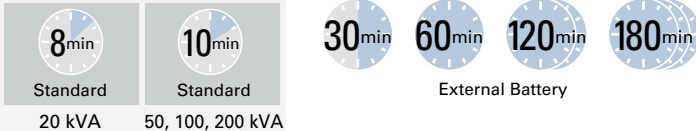
## SANUPS E23A

PARALLEL PROCESSING UPS



| Input                      | Output                     | Output capacity   |                   |                    |                     |
|----------------------------|----------------------------|-------------------|-------------------|--------------------|---------------------|
| AC 200 V<br>3 phase 3 wire | AC 200 V<br>3 phase 3 wire | 20 kVA<br>(16 kW) | 50 kVA<br>(40 kW) | 100 kVA<br>(80 kW) | 200 kVA<br>(160 kW) |

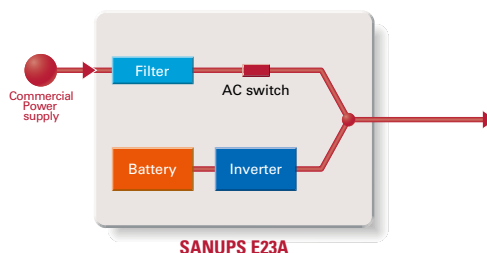
Battery backup time



- 1 Saves up to 13% on electricity rates.**
  - Achieved 97% of power conversion efficiency.
  - Contributes to environmental protection.
- 2 Saves installation space.**
  - Achieved smaller size (area reduction of 40% compared to conventional model) and lighter weight (reduction of 50% compared to conventional model).
  - When using a long-duration battery, since the optional charger is not necessary, the space required for installation can be reduced by 60%.
- 3 Supplies power for any system without voltage sag.**
  - Even during blackout, instantaneous blackout, or voltage dip, the complete sine wave power is supplied without interruption.
  - Eliminates equipment malfunction caused by distortion of the waveform.
  - Suppresses harmonic current.
- 4 Easy maintenance for cost reduction.**
  - UPS provides a routine automatic battery check.
  - Since the capacitor supplies power when a short power interruption such as an instantaneous blackout, deterioration of the battery can be reduced.
- 5 Installation with a small investment.**
  - Maintenance bypass circuit is included as standard equipment.
  - Eliminates the optional charger for long-duration backup.
- 6 The design considers the plant facility load.**
  - Since the overload capacity is high (800%: 0.5 seconds), rush current such as starting motor load can be endured.

### Parallel processing type UPS is...

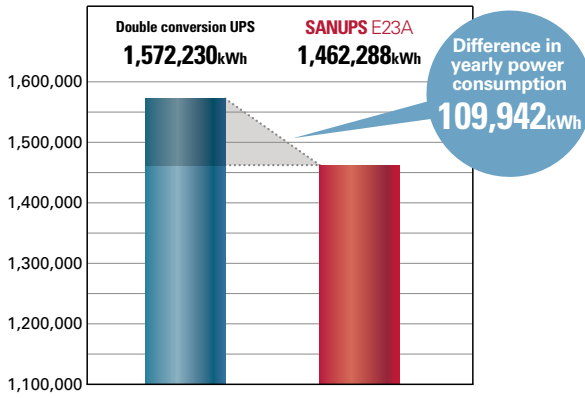
- Since the commercial power supply and the inverter are always operating in parallel, this UPS can supply the power without interruption even when there is an instantaneous voltage dip or blackout.
- In normal mode, the power is supplied from the commercial power supply, and the inverter compensates the load side harmonic current, so that input current became sinusoidal waveform. (Active filter function)



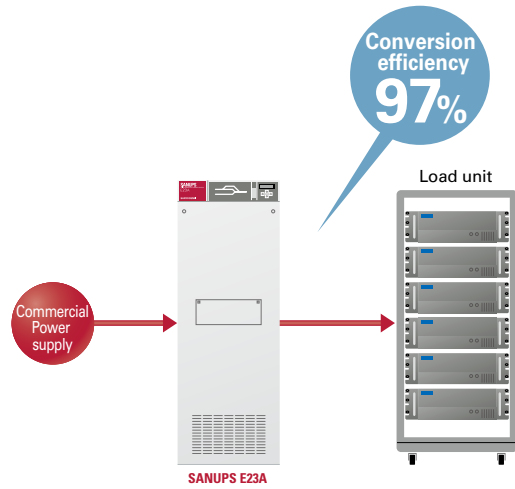
# 1 Saves up to 13% on electricity rates.

- The achievement of 97% power conversion efficiency enables users to reduce running-cost significantly.
- Can contribute to environmental protection.

## ■ Power consumption comparison for one year

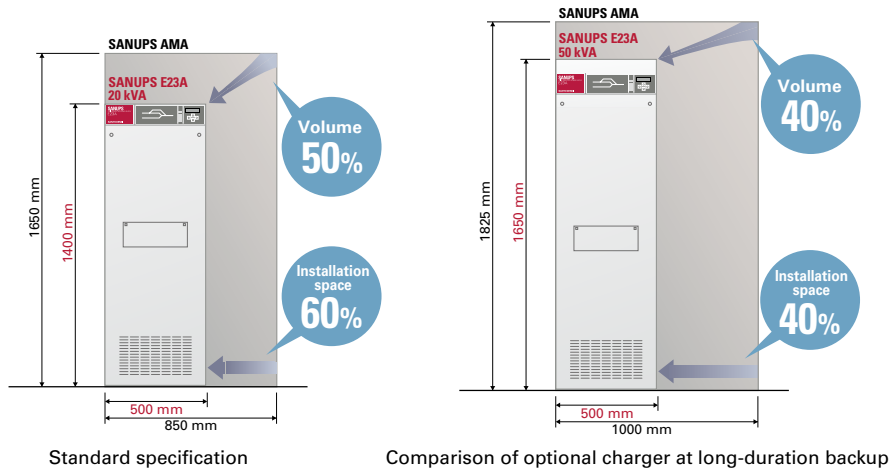


\* When power is supplied based on rated power.  
 \* Includes power consumption of facility equipment and air conditioning system used for UPS cooling.



# 2 Saves installation space.

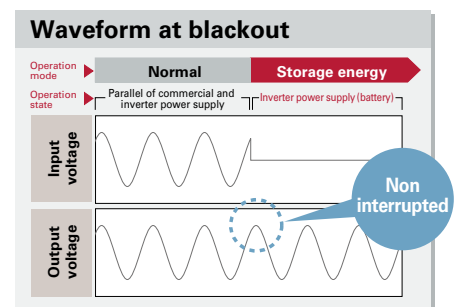
- Achieved smaller size (area reduction of 40% compared to conventional model) and lighter weight (reduction of 50% compared to conventional model).
- When using a long-duration battery, since the optional charger is not necessary, the space required for installation can be reduced by 60%.



# 3 Supplies power for any system without voltage sag.

- Communication equipment and computers are designed based on the assumption that uninterruptible power is supplied.
- Even during blackout, instantaneous blackout, or voltage dip, the complete sine wave power is supplied without interruption, thus, equipment malfunction caused by the distortion waveform is eliminated.
- Since clean waveform power is supplied to the load even when surge noise disturbs the commercial power supply, the equipment can be used comfortably.\*
- Suppresses the harmonic current caused by loads, and at the same time, improves the input power factor (active filter function).

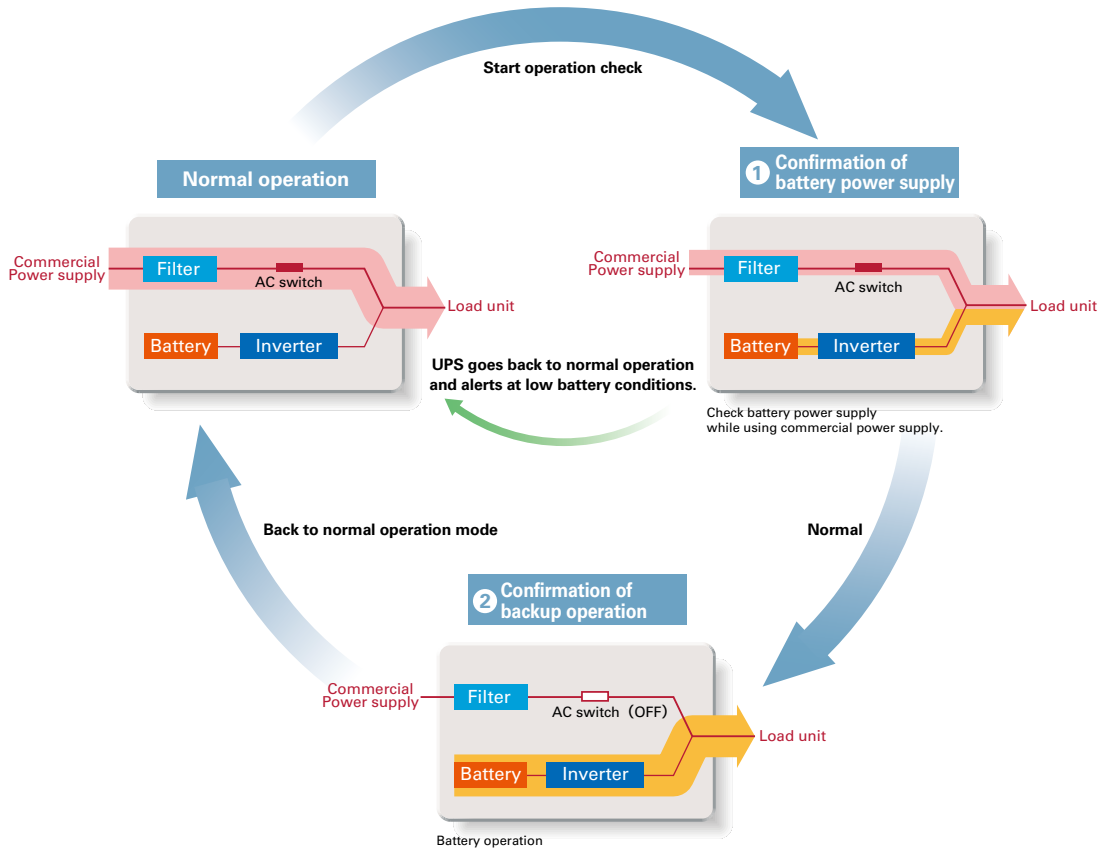
\*If there is an instantaneous voltage dip or blackout, the capacitor supplies power, thus, unnecessary discharge from the batter is prevented.



## 4 Easy maintenance for cost reduction.

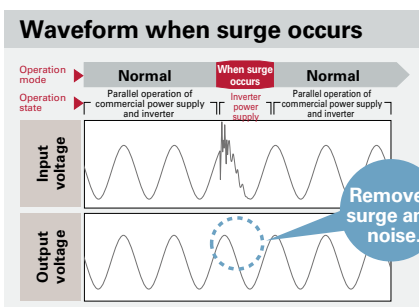
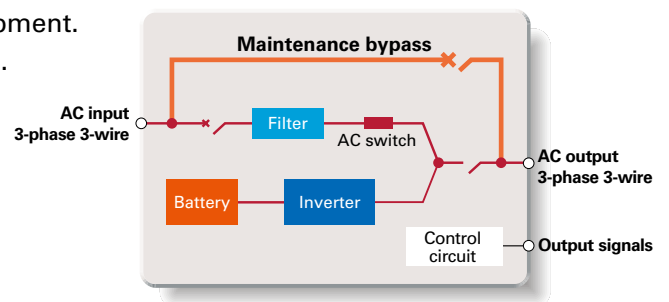
- Automatically carries out regular circuit checks in order to maintain secure backup operation.

\*The schedule of the battery test can be arbitrarily set.



## 5 Installation with a small investment.

- Maintenance bypass circuit is included as standard equipment.
- Eliminates the optional charger for long-duration backup.



Examples of troubles by commercial power failure

- Reset or stop of computers
- Communication failure of network equipment
- Stop or failure of equipment for automatic production line, etc.
- Poor production quality of semiconductor production equipment

## Specifications

| Item   | Model                            | E23A203  | E23A503                               | E23A104         | E23A204          | Remarks   |   |
|--|----------------------------------|--|---------------------------------------|-----------------|------------------|---|---|
| Rated output capacity (apparent power/effective power) |                                  | 20 kVA / 16 kW   | 50 kVA / 40 kW                        | 100 kVA / 80 kW | 200 kVA / 160 kW |   |   |
| Operation system                                       |                                  | Parallel processing method   |                                       |                 |                  |   |   |
| Cooling system   |                                  | Forced air   |                                       |                 |                  |   |   |
| AC input   | Number of phases/wires           | 3 phase 3 wire   |                                       |                 |                  |   |   |
|  | Rated voltage                    | 200 V (205 V, 210 V)   |                                       |                 |                  |   |   |
|  | Rated frequency                  | 50 Hz / 60 Hz  |                                       |                 |                  |   |   |
|  | Required capacity                | 20 kVA or less   | 50 kVA or less                        | 100 kVA or less | 200 kVA or less  | Excluding the one for 180 minutes                     |   |
|  | Power factor                     | 0.98 or higher   |                                       |                 |                  | At rated operation                                    |   |
|  | Distorted current compensation   | Compensation capacity  | Up to rated capacity                  |                 |                  |   |   |
| Compensation order                                     |                                  | 2 to 20th Harmonics  |                                       |                 |                  |   |   |
| Compensation rate                                      |                                  | 85% or higher  |                                       |                 |                  | At 100% rectifier load                                |   |
| AC output  | Number of phase/wire             | 3 phase 3 wire   |                                       |                 |                  | Same as AC input                                      |   |
|  | Rated voltage                    | 200 V (205 V, 210 V)   |                                       |                 |                  |   |   |
|  | Voltage accuracy                 | At commercial operation  | Within -8% and +10% (factory setting) |                 |                  | User selectable voltage accuracy : Note 1             |   |
|  |                                  | At battery operation   | Within $\pm 2\%$                      |                 |                  |   |   |
|  | Rated frequency                  | 50 Hz / 60 Hz  |                                       |                 |                  | Same as AC input                                      |   |
|  | Rated frequency accuracy         | At commercial operation  | Within $\pm 0.4\%$ (factory setting)  |                 |                  | User selectable frequency accuracy : Note 1           |   |
|  |                                  | At battery operation   | Within $\pm 0.1\%$                    |                 |                  |   |   |
|  | Load power factor                | Rating   | 0.8 (lagging)                         |                 |                  |   |   |
|  |                                  | Variation range  | 0.7 to 1.0 (lagging)                  |                 |                  |   |   |
|  | Voltage waveform distortion rate | At linear load   | 2% or less                            |                 |                  |   | At battery operation  |
|  |                                  | At rectifier load  | 5% or less                            |                 |                  |   |   |
|  | Voltage unbalance rate           | At battery operation   | 2% or less                            |                 |                  |   | Insert one third of the load of the total capacity to one line voltage. |
|  | Instantaneous voltage variation  | Variation rate   | $\pm 5\%$                             |                 |                  |   | At battery operation  |
| Settling time  |                                  | 50ms or less   |                                       |                 |                  |   |   |
| Overload capacity                                      | At commercial operation          | 200% (30 seconds), 800% (0.5 seconds)  |                                       |                 |                  |   |   |
|  | At battery operation             | 125% (10 minutes), 150% (1 minute)   |                                       |                 |                  |   |   |
| Switching to battery operation                         |                                  | Without interruption   |                                       |                 |                  |   |   |
| Battery  | Type                             | Small-sized sealed lead-acid battery   |                                       |                 |                  |   |   |
|  | Backup time                      | 8 minutes (built-in battery)   | 10 minutes (separate battery unit)    |                 |                  | Can support up to 180 minutes by the optional battery |   |
|  | Nominal voltage                  | 336V (168 cells)   | 312V (156 cells)                      |                 |                  |   |   |
| Acoustic noise   |                                  | 57 dB or less  | 65 dB or less                         | 65 dB or less   | 70 dB or less    | 1 m from front, 1 m for height                        |   |
| Interface  |                                  | LAN Interface card (Option)  |                                       |                 |                  |   |   |
| Environment  |                                  | Operating temperature: 0 to 40°C, Relative humidity : 30 to 90% (Non-condensing) |                                       |                 |                  |   |   |

Note 1: For changing voltage accuracy and frequency accuracy, contact us.

## Input capacity of facilities / Amount of heat generation / Amount of cooling air / Amount of ventilation

| Item                         | Model | E23A203                  | E23A503                  | E23A104                  | E23A204                  | Remarks |
|------------------------------|-------|--------------------------|--------------------------|--------------------------|--------------------------|---------|
| Rated output capacity        |       | 20 kVA                   | 50 kVA                   | 100 kVA                  | 200 kVA                  |         |
| Input capacity of facilities |       | 20 kVA                   | 50 kVA                   | 100 kVA                  | 200 kVA                  |         |
| Amount of heat generation    |       | 1.0 kW                   | 2.6 kW                   | 5.1 kW                   | 10.2 kW                  |         |
| Amount of cooling air        |       | 5.3 m <sup>3</sup> /min  | 13.4 m <sup>3</sup> /min | 26.3 m <sup>3</sup> /min | 52.6 m <sup>3</sup> /min |         |
| Amount of ventilation        |       | 0.85 m <sup>3</sup> /min | 2.7 m <sup>3</sup> /min  | 4.1 m <sup>3</sup> /min  | 9.3 m <sup>3</sup> /min  |         |

Note 1: This table is calculated under the following conditions: load power factor 0.8, small-sized sealed lead-acid battery (rating), room temperature 40°C, external temperature 30°C

Note 2: Amount of heat generation and amount of cooling air are for the rated output after completion of charging the battery.

Note 3: When the optional battery is used, input capacity of facilities, amount of heat generation, amount of cooling air, and amount of ventilation are changed.

## Output signals and output conditions

| Output signal             | Output conditions   |
|---------------------------|---|
| Normal operation          | Both the commercial power supply and the inverter supply power. |
| Inverter operating        | The inverter is operating                                       |
| Inverter stopped          | The inverter is stopped   |
| Battery power supply      | The battery is supplying power                                  |
| Low battery voltage alarm | The battery voltage is below the specified value                |
| AC input error            | The input voltage is out of the specified range                 |
| Over current              | The output current is over the specified value                  |
| Minor event               | An event that does not prevent continued inverter operation     |
| Serious event             | An event that results in inverter shutdown                      |

● No-voltage contact. Contact capacity is AC 125 V, 0.3 A/DC 30 V, 1 A.

## Option

### ■ Input transformer

Used for different input voltage and improving voltage balance with the ground.

### ■ External battery unit

Up to 180 minutes of blackout is supported without optional charger.

### ■ Network

- LAN interface card [Card for connection with LAN (100Base-T)]
- UPS Management software SANUPS SOFTWARE (Power management software for computers)

### ■ Connection with an engine generator

When using an engine generator with unstable voltage, frequency, or output, contact us for handling.

## External dimensions

### ■ Inverter unit

| Model          | Capacity | Dimensions (mm) |     |      |     | Weight (kg)                |
|----------------|----------|-----------------|-----|------|-----|----------------------------|
|                |          | W               | D   | H1   | H2  |                            |
| <b>E23A203</b> | 20 kVA   | 500             | 700 | 1400 | 125 | 400 (240) <sup>Note1</sup> |
| <b>E23A503</b> | 50 kVA   |                 |     | 1650 |     | 350                        |
| <b>E23A104</b> | 100 kVA  | 750             | 800 | 1825 |     | 600                        |
| <b>E23A204</b> | 200 kVA  | 1500            |     |      |     | 1200                       |

Note 1: The number in parentheses is the weight without battery (8 min.).

### ■ Specifications (Battery Cubicle)

| Capacity | Battery Capacity (min) | Battery         |               | Battery Cubicle dimensions (mm)           |                             |      |      | Weight (kg) | Number of cubicle |   |
|----------|------------------------|-----------------|---------------|---|-----------------------------|------|------|-------------|-------------------|---|
|          |                        | Number of Cells | Capacity (Ah) | W   | D                           | H1   | H2   |             |                   |   |
| 20 kVA   | 8                      | 168             | 17            | The battery built into the inverter unit. |                             |      |      |             |                   |   |
|          | 30                     | 156             | 44×2          | 850                                       | 700                         | 1650 | 125  | 1100        | 1                 |   |
|          | 60                     |                 | 28×4          | 1400                                      |                             |      |      | 1690        | 2                 |   |
|          | 120                    |                 | 44×4          | 1700                                      | 2200                        | 2    |      |             |                   |   |
|          | 180                    |                 | 300           | 3000                                      | 800                         | 1825 | 4500 | 3           |                   |   |
| 180      | 300                    |                 | 3000          | 800                                       | 1825                        | 4500 | 3    |             |                   |   |
| 50 kVA   | 10                     | 156             | 44×2          | 850                                       | 700                         | 1650 | 125  | 1100        | 1                 |   |
|          | 30                     |                 | 44×4          | 1700                                      | 2200                        | 2    |      |             |                   |   |
|          | 60                     |                 | 300           | 3000                                      | 800                         | 1825 | 4500 | 3           |                   |   |
|          | 120                    |                 | 500           | 4000                                      | 900                         |      | 7210 | 4           |                   |   |
|          | 180                    |                 | 300×2         | 6000                                      | 800                         |      | 9000 | 6           |                   |   |
|          | 180                    |                 | 300           | 3000                                      | 800                         |      | 1825 | 125         | 1800              | 2 |
| 100 kVA  | 30                     | 156             | 300           | 3000                                      | 800                         | 1825 | 125  | 4500        | 3                 |   |
|          | 60                     |                 | 500           | 4000                                      | 900                         |      |      | 7210        | 4                 |   |
|          | 120                    |                 | 1000          | Contact us for information.               |                             |      |      |             |                   |   |
|          | 180                    |                 | 1500          | Contact us for information.               |                             |      |      |             |                   |   |
|          | 180                    |                 | 1500          | Contact us for information.               |                             |      |      |             |                   |   |
| 200 kVA  | 10                     | 156             | 200×2         | 4400                                      | 800                         | 1825 | 125  | 6200        | 4                 |   |
|          | 30                     |                 | 300×2         | 6000                                      | Contact us for information. |      |      |             |                   |   |
|          | 60                     |                 | 1000          | Contact us for information.               |                             |      |      |             |                   |   |
|          | 120                    |                 | 2000          | Contact us for information.               |                             |      |      |             |                   |   |
|          | 180                    |                 | 2500          | Contact us for information.               |                             |      |      |             |                   |   |

\*Even when an optional battery is used, the optional charger is not necessary.

### ■ Input transformer (Option)

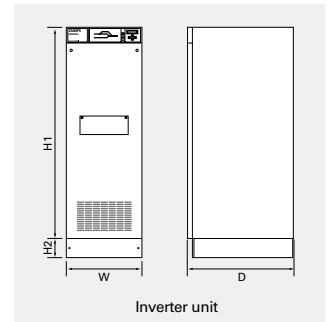
Cubicle type

| Capacity | Dimensions (mm) |     |      |     | Weight (kg) |
|----------|-----------------|-----|------|-----|-------------|
|          | W               | D   | H1   | H2  |             |
| 20 kVA   | 400             | 700 | 1400 | 125 | 360         |
| 50 kVA   | 700             |     | 1650 |     | 635         |
| 100 kVA  | 750             | 800 | 1825 |     | 930         |
| 200 kVA  | 1000            | 900 |      |     | 1100        |

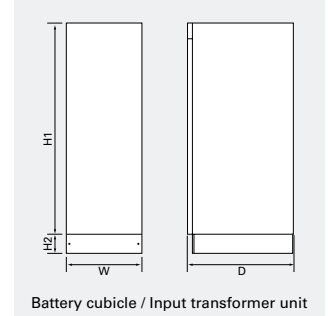
BOX type

| Capacity | Dimensions (mm) |     |      |    | Weight (kg) |
|----------|-----------------|-----|------|----|-------------|
|          | W               | D   | H1   | H2 |             |
| 20 kVA   | 400             | 700 | 675  | 75 | 310         |
| 50 kVA   | 700             |     | 875  |    | 565         |
| 100 kVA  | 750             | 800 | 1075 |    | 830         |

Note: Cubicle type for 200 kVA



Inverter unit



Battery cubicle / Input transformer unit

Official Distributor

TOMINAGA ELECTRIC CO.,LTD

tominagadk.co.jp



■ ECO PRODUCTS

Sanyo Denki's ECO PRODUCTS are designed with the concept of lessening impact on the environment in the process from product development to waste. The product units and packaging materials are designed for reduced environmental impact. We have established our own assessment criteria on the environmental impacts applicable to all processes, ranging from design to manufacture. Those products that satisfy the criteria are accredited as ECO PRODUCTS.

## Notes when investigating use of this product in your applications

- Before starting installation, assembling and use, read the "Operation Manual" carefully and use the product correctly in your applications.
  - When you are going to use this product in the following application, the special considerations are required for operation, running, maintenance and control. Be sure to consult with our company as a part of your investigations.
    - (a) Medical equipment and other equipment that are related directly to human life.
    - (b) Train or elevator that can give injury to human body.
    - (c) Socially and publicly important computer systems.
    - (d) And other equipment that are related to safety of human life and that can affect severe effects on maintenance of public functions.
  - For the applications that undergo vibration such as vehicles, ships and transportation facilities, please consult with our company.
  - Never modify this product or give additional processing to this product.
  - For the installation and maintenance work, please consult with our company or with specialized company.
- ※ For any inquiry or consultation, please contact our sales representative.

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CATALOG No.P0763B012 '15.5.C