

# SANUPS

## TRUE ON LINE UPS

MODEL TYPE

# ASD



**SANYO DENKI**

# HIGH RELIABILITY FAULT TOLERANT UPS SYSTEM

Uninterruptible Power Supply

# SANUPS ASD



Input <b>AC208V</b> Single-phase	Output <b>AC208V</b> Single-phase	<b>3.5~14kVA</b> (2.8~11.2kW)
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The computer system is forced to expand with growth of business. The SANUPS ASD supports expansion of the computer system of our client by flexibly adding our basic unit at a maximum of four units. The SANUPS ASD basic unit uses the complete individual control system that is uniquely developed by SANYO DENKI. The common control unit is eliminated and reliability of power supply is significantly improved. New generation UPS enabling new configuration putting importance on the power supply reliability and system expandability. This is the SANUPS ASD.



## **1** *Supplying extremely stable and reliable power*

- Parallel redundant operation that achieves high reliability, can be realized.
- Power source of complete sine wave can be supplied with the all time inverter power feeding (True On-Line Method) system even at the time when power is stopped or at the moment of momentary power failure or in the event of voltage drop.
- Eliminating malfunctions of load equipment due to disorder of power waveform

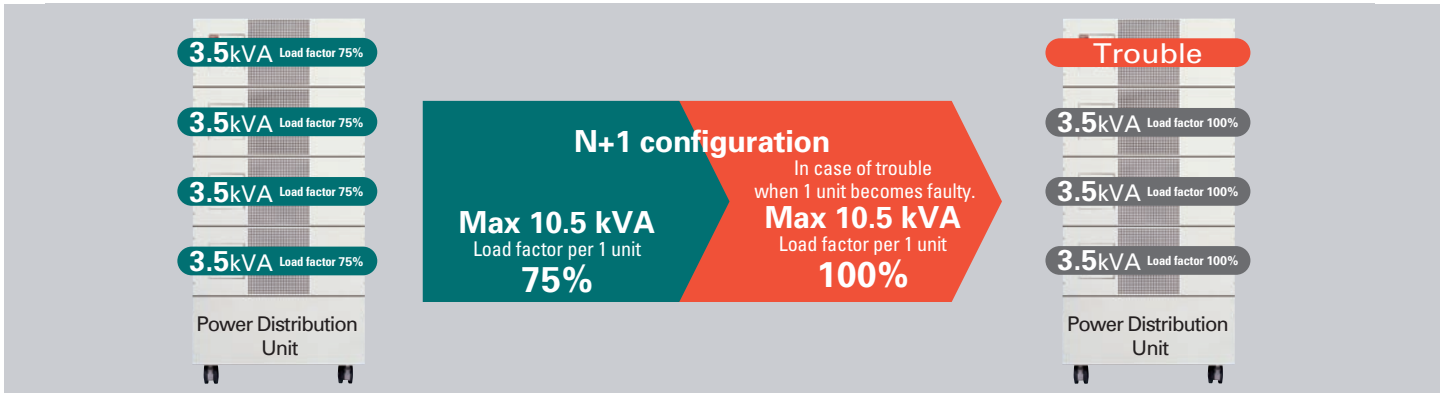
## **2** *Setting the output capacity as desired*

- A maximum of 14 kVA output capacity can be set as desired.

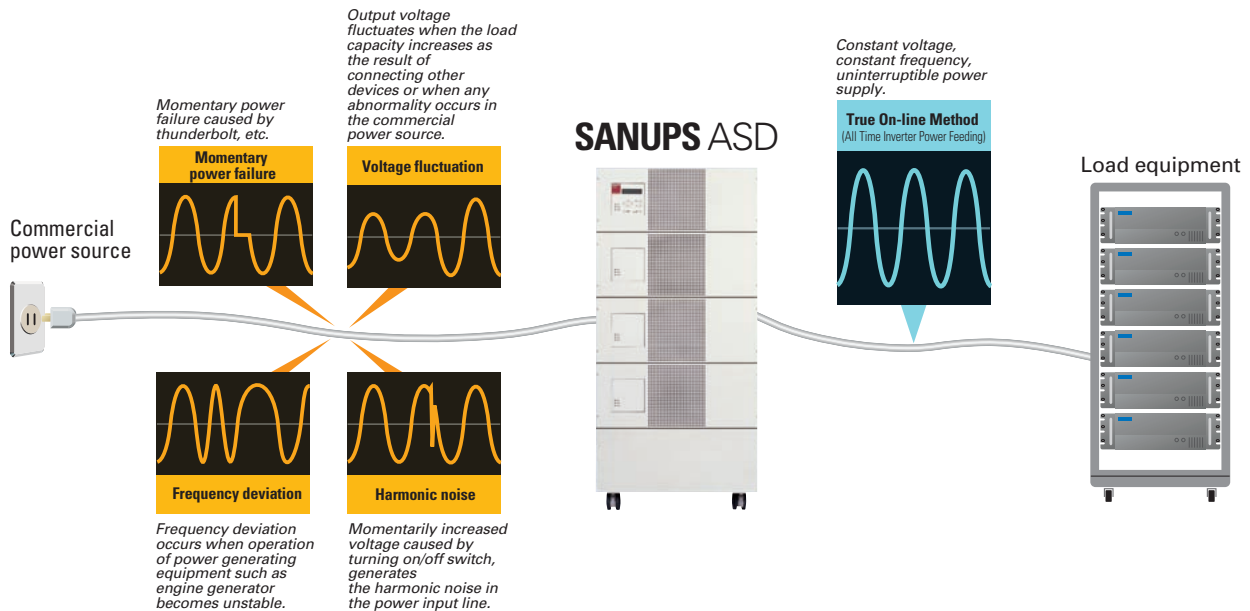
# 1 Feature

## Supplying extremely stable and reliable power

- Parallel redundant operation that achieves high reliability, can be realized.
- Extremely reliable power supply can be realized by configuring N+1 unit system and allowing extra power margin as much as a single UPS unit in the case of unexpected trouble.



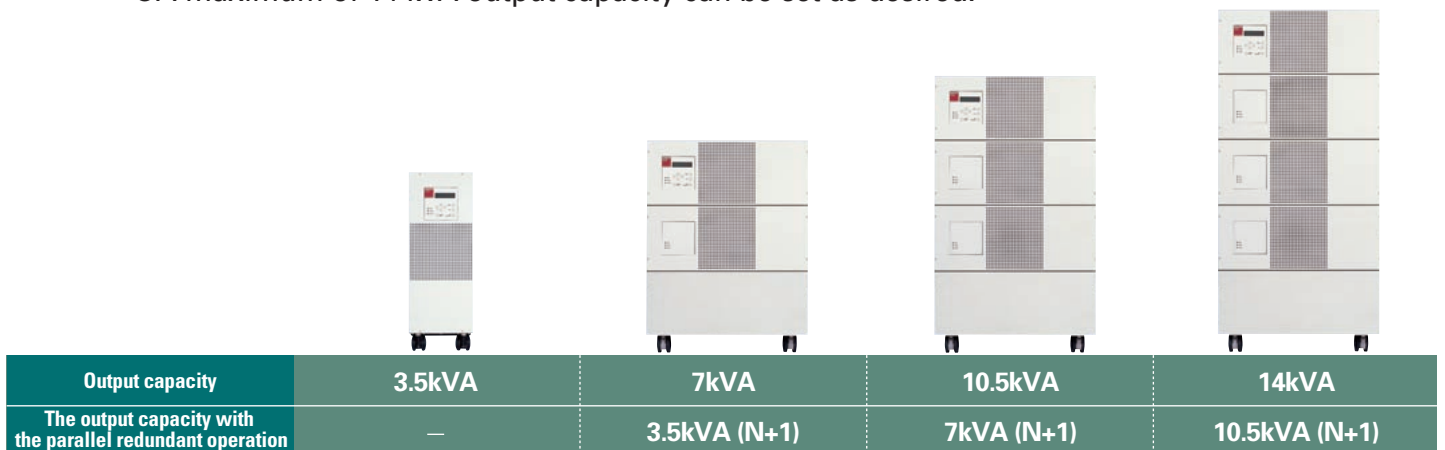
- Power source of complete sine wave can be supplied with the all time inverter power feeding (True On-Line Method) system even at the time when power is stopped or at the moment of momentary power failure or in the event of voltage drop.
- Eliminating malfunctions of load equipment due to disorder of power waveform



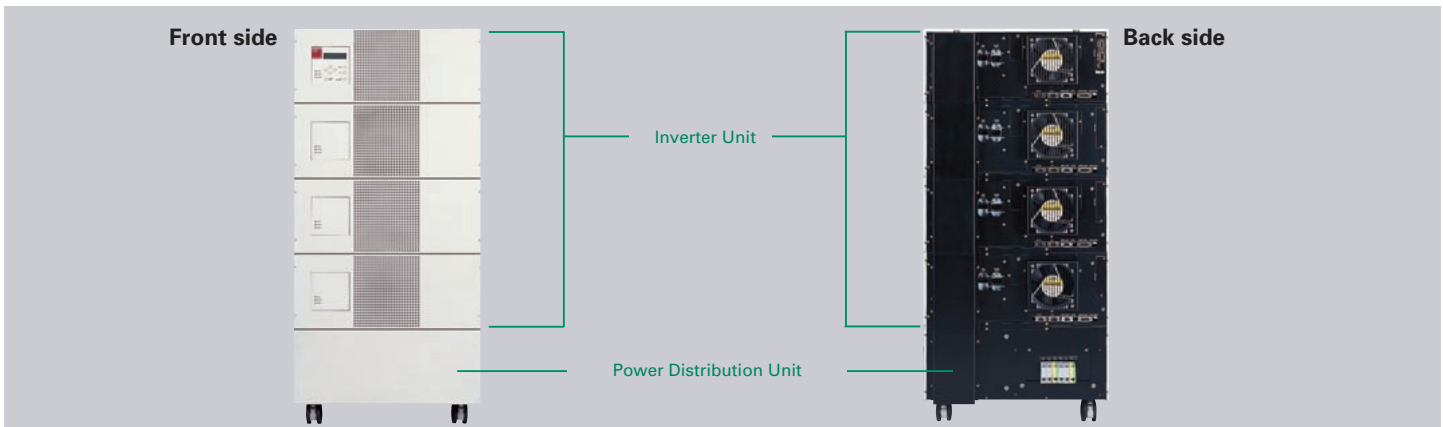
# 2 Feature

## Setting the output capacity as desired

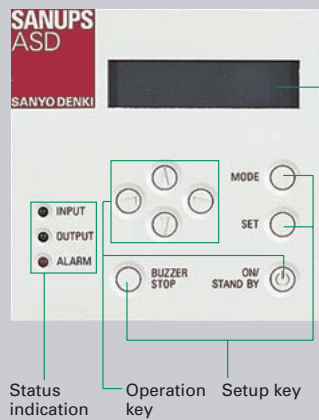
- A maximum of 14 kVA output capacity can be set as desired.



## ■ Configuration example (14 kVA)



### ■ Operation panel



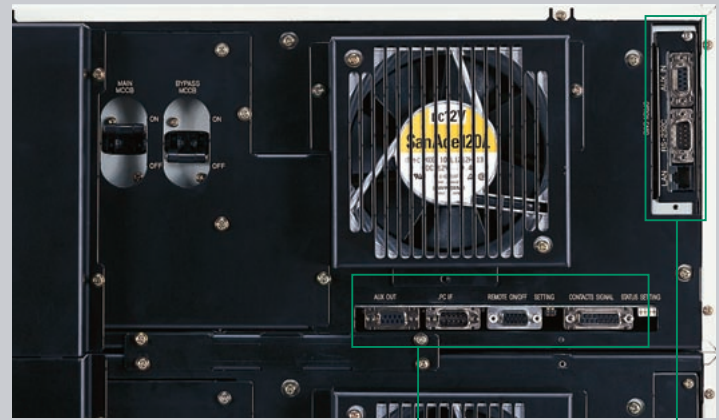
#### Example of indication on LCD display

NORMAL OPERATION  
Status mode

NUMBER OF POWER FAILURE  
1.0 TIMES  
Maintenance mode

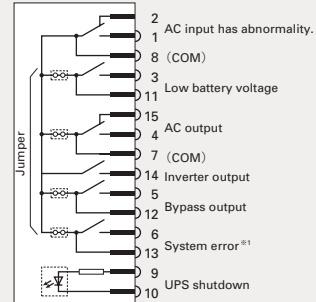
MEASUREMENT  
LOAD FACTOR 80 %  
Measurement mode

### ■ Network interface



### ■ Connection signal output [Contact signal interface]

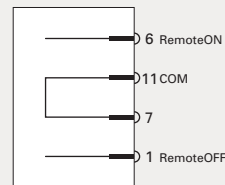
- D-sub 15 pins
- Female connector
- Fixing screws : M3



※ Contact capacity : AC110 V / DC24 V, 0.2 A  
 ※ 1 It operates on the pulse of +5 V to +12 V, 100 ms or longer.

### ■ Remote ON/OFF input

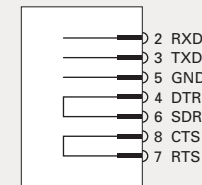
- D-sub 15 pins
- Female connector
- Fixing screws : #4-40UNC



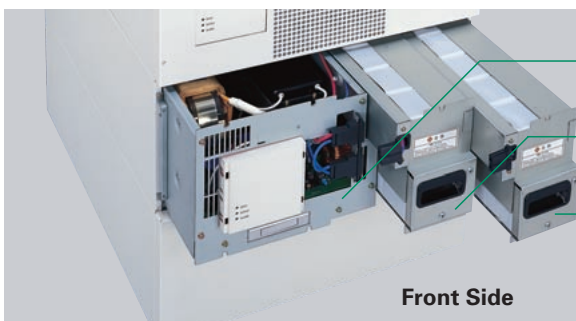
※ It operates on the voltage-less contact signal (100 ms or longer, one-shot).  
 ※ It should be operated by the push-button switch.

### ■ Serial communication input/output [RS-232C interface]

- D-sub 9 pins
- Male connector
- Fixing screws : #4-40UNC



## ■ Improvement of Maintainability, Thanks to Modular Design of Units



- Expected life of battery is 5 years.

※ For the unit replacement, use of the maintenance bypass circuit is required.

- Replacement of the inverter module and that of battery module are restricted to the authorized maintenance service staff.

## Specification table

Item	Standard specification(N)								Parallel redundant specification(N+1)			Remark	
	Model	Standard type	ASD35S2	ASD70S2	ASD100S2	ASD140S2	ASD35S2N	ASD70S2N	ASD100S2N				
Output power			3.5kVA / 2.8kW	7.0kVA / 5.6kW	10.5kVA / 8.4kW	14.0kVA / 11.2kW	3.5kVA / 2.8kW	7.0kVA / 5.6kW	10.5kVA / 8.4kW				
System	Topology	True On-Line, double conversion											
	Input rectify system	IGBT PWM											
	Inverter system	High-frequency PWM											
	Cooling	Forced air											
AC Input	Number of phase / wire	Single-phase / 2-wire											
	Nominal voltage	208V (±15%)											
	Frequency	50 / 60Hz (±5%)											
	Required capacity	4kVA	8kVA	12kVA	16kVA	4(8)kVA	8(12)kVA	12(16)kVA				Note 2	
	Power factor	> 0.97											
AC Output	Number of phase / wire	Single-phase / 2-wire											
	Nominal voltage	208V											
	Voltage regulation	±5%											
	Frequency	50 / 60Hz											
	Lock-in range of synchronization with commercial power source	Within ±15% of rated input voltage and within ±1% rated input frequency											
	Voltage distortion	Linear load	< 3%										
		Non-linear load	< 8%										
	Power factor	0.8 (lag)											
	Transient voltage regulation	100% step load	±10%										
		Input voltage step	±10%										
Overcurrent capacity	Inverter	105 to 110% (1min.), 120% (momentary)				210 to 220% (1min.), 240% (momentary)	158 to 165% (1min.), 180% (momentary)	140 to 147% (1min.), 160% (momentary)				Note 7	
	Bypass	200% for 30sec, 800% for 2cycles				400% for 30sec, 1600% for 2cycles	300% for 30sec, 1200% for 2cycles	267% for 30sec, 1067% for 2cycles				Note 7	
Overcurrent protection	Automatically switched to the bypass circuit (With auto return function)												
Acoustic noise	< 45dB	< 50dB			< 55dB	< 50dB			< 55dB			Note 8	
Battery	Type	Maintenance-free sealed lead-acid battery											
	Backup time	10min.				30min.	18min.	15min.				Note 9	
Nominal heat dissipation	0.57kW (490kcal/h)	1.14kW (980kcal/h)	1.71kW (1470kcal/h)	2.28kW (1960kcal/h)	0.57kW (490kcal/h)	1.14kW (980kcal/h)	1.71kW (1470kcal/h)						
Input current leak	< 3mA	< 6mA	< 9mA	< 12mA	< 6mA	< 9mA	< 12mA						
Operating temperature	32 to 104°F (0 to 40°C)												
Relative humidity	30 to 90% (Non-condensing)												

Note 1 The output circuit is normally not grounded.

Note 2 On parallel redundancy specification, if the load capacity exceeds the output capacity, the required capacity is in ( ). (Output capacity which is possible to supply as equipment, has capacity of unit number.)

Note 3 In the case when the input voltage distortion is less than 1%.

Note 4 The same frequency as that of the input frequency is selected.

Note 5 When the system is operated at the rated input / output rating.

Note 6 Maximum allowable range of deviation: 0.7 (lag) to 1.0.

Note 7 When rated input is connected at the rated load factor.

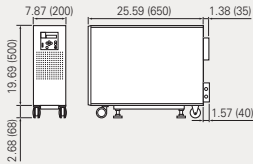
Note 8 At the position 1 meter in front of the system. "A" characteristics (with the linear load).

Note 9 When operating at the rated output with ambient temperature of 77°F (25°C), default value.

## Dimensions

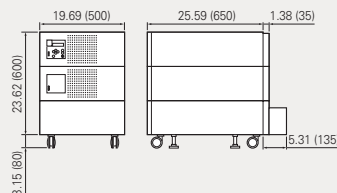
Model	ASD35S2	ASD70S2	ASD35S2N	ASD100S2	ASD75S2N	ASD140S2	ASD100S2N
Dimensions	Figure1	Figure2		Figure3		Figure4	
Weight	220.46lbs (100kg)	507.05lbs (230kg)		705.47lbs (320kg)		903.88lbs (410kg)	

Figure1



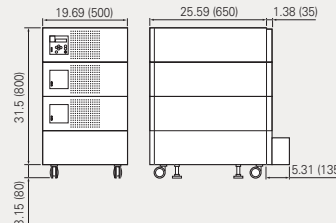
Unit: in.(mm)

Figure2



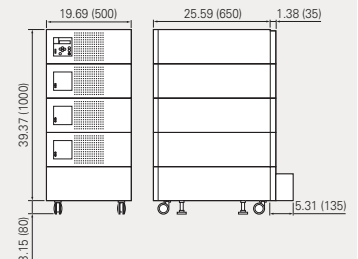
Unit: in.(mm)

Figure3



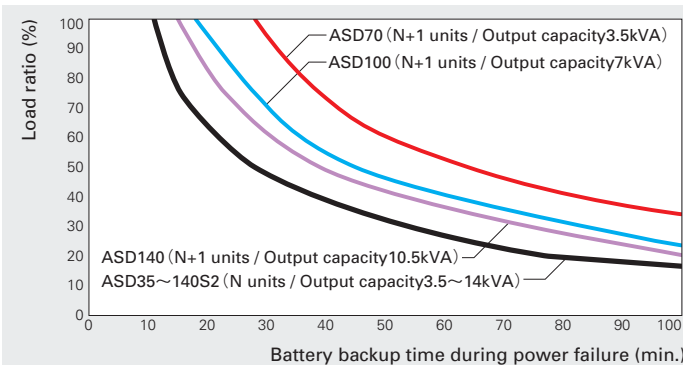
Unit: in.(mm)

Figure4

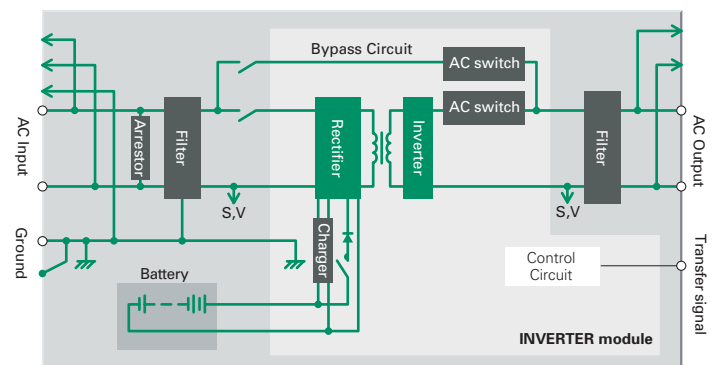


Unit: in.(mm)

## Battery Backup Time during Power Failure

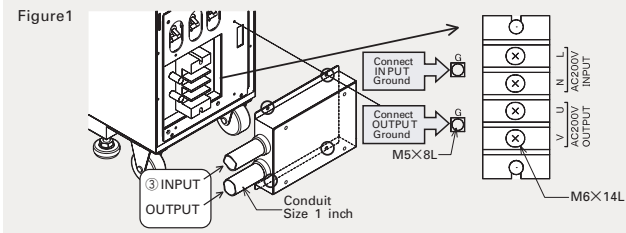


## System Diagram

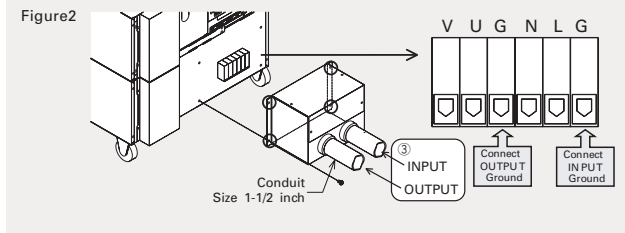


## Wiring

Model name	Voltage (V)		Cables for wiring			Terminals for Outside Connection				Input Breaker			
	Input	Output	Input	Output	GND	Input / Output		GND	Transfer signal		Remote Control		
ASD35S2U	208	208	No.10AWG	No.10AWG	No.10AWG	M6	Figure 1	Direct connection of wires	D-sub 15-pin (female)	D-sub 15-pin (female)	30A or more		
ASD70S2U			No.6AWG	No.6AWG	No.6AWG							50A or more	
ASD35S2NU			No.4AWG	No.4AWG	No.4AWG								75A or more
ASD100S2U													
ASD70S2NU													
ASD140S2U													
ASD100S2NU	No.2AWG	No.2AWG	No.2AWG	100A or more									



\* Prepare the conduit by the Customer



\* Prepare the conduit by the Customer

## Interface

### PC interface

#### ■ SANUPS SOFTWARE

The SANUPS SOFTWARE UPS Power Management Software increases the reliability and manageability of the entire system, including the network and the server. It provides UPS information to the System Manager, and flexible settings for handling power-related problems.



Example using  
SANUPS SOFTWARE



### Network interface

#### ■ LAN interface card

A LAN Interface Card (100Base-TX) can be inserted in the optional card slot on the rear panel of the SANUPS ASD. This allows for continuous monitoring and reporting of power conditions, and quick response during power failures. Power problems can also be reported to the System Manager via e-mail when this Card is installed.

### OS

#### for Windows

Windows 2000  
Windows XP  
Windows XP Professional x64 Edition  
Windows Vista  
Windows Server 2003  
Windows Server 2003 x64 Edition

#### for UNIX

Solaris 8, 9, 10 (SPARC)  
AIX 5.1, 5.2, 5.3  
HP-UX 11i (PA-RISC / Itanium2)

#### for Linux

Red Hat Enterprise Linux v.3 (x86 / AMD64 / Intel EM64T)  
Red Hat Enterprise Linux v.4 (x86 / AMD64 / Intel EM64T)  
SUSE Linux Enterprise Server 9 (x86 / AMD64 / Intel EM64T)  
TurboLinux 10 Server (x86 / AMD64 / Intel EM64T)

Items	Model No.	
SANUPS SOFTWARE	for Windows	PMS40B00E (without cable)
	for Multiple OS *corresponds to all upper OS	PMS41B00E (without cable)
LAN interface card	PRE11A01-US	

Model No.		
Output Capacity	Standard specification (N)	Parallel redundant specification(N+1)
3.5 kVA	ASD35S2UA002-08	-
7 kVA	ASD70S2UA002-08	ASD35S2NUA00-08
10.5 kVA	ASD100S2UA002-08	ASD70S2NUA00-08
14 kVA	ASD140S2UA002-08	ASD100S2NUA00-08

## 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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