FACTORY AUTOMATION

Reduction in tact time
Load slippage prevention
Dedicated monitoring functions
Applicability in a wide range of industries
Easier maintenance
Approach to the leading drive performance

The optimum functions for cranes are added.

INVERTER FR-A800 Plus

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001 (standards for quality assurance management systems).

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

INVERTERFR-A800 Plus

A800 Plus

for CRANES

-Reduction in tact time
-Load slippage prevention
-Dedicated monitoring functions
-Applicability in a wide range of industries
-Easier maintenance
-Approach to the leading drive performance
GLOBAL IMPACT OF MITSUBISHI ELECTRIC

Changes for the Better

We bring together the best minds to create the best technologies. At Mitsubishi Electric, we understand that technology is the driving force of change in our lives. By bringing greater comfort to daily life, maximising the efficiency of businesses and keeping things running across society, we integrate technology and innovation to bring changes for the better.

Mitsubishi Electric is involved in many areas including the following:

- **Energy and Electric Systems**
  A wide range of power and electrical products from generators to large-scale displays.

- **Electronic Devices**
  A wide portfolio of cutting-edge semiconductor devices for systems and products.

- **Home Appliances**
  Dependable consumer products like air conditioners and home entertainment systems.

- **Information and Communication Systems**
  Commercial and consumer-centric equipment, products and systems.

- **Industrial Automation Systems**
  Maximising productivity and efficiency with cutting-edge automation technology.

Through Mitsubishi Electric's vision, "Changes for the Better" are possible for a brighter future.
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Pursuing optimum functions to

A new lineup of dedicated inverters for specialized fields are born!

Plus: The optimum functions for each dedicated field are added to the already high performance and high functionality FR-A800 series inverter.
meet our customers' needs

performance and high functionality FR-A800 series inverter.

for CRANES
Suited for various cranes to achieve fast, robust, and smooth operations

**Features**

**Reduction in tact time**

**Anti-sway control**

By using the Mitsubishi’s original anti-sway control technology, the swinging of an object moved by a crane is suppressed at the time of stopping, even without operator’s input adjustment. This control cuts down the tact time and facilitates efficient operation. By using the Mitsubishi’s original anti-sway control technology, the swinging of an object moved by a crane is suppressed at the time of stopping, even without operator’s input adjustment. This control cuts down the tact time and facilitates efficient operation. By using the Mitsubishi’s original anti-sway control technology, the swinging of an object moved by a crane is suppressed at the time of stopping, even without operator’s input adjustment. This control cuts down the tact time and facilitates efficient operation.

**Load torque high-speed frequency control (mode 2)**

When there is a light-load (when light loads are moved up or down by a crane), the speed will automatically increase. This reduces the tact time and facilitates efficient operation. The possible operation speed is set automatically according to the load. After starting the inverter, the inverter runs at high speed with a light load.

**Shortest-time torque startup function**

The time from the start command to when the brake opens is shortened. This will contribute to reduction in tact time.

**Magnetic flux command during pre-excitation**

Decreasing the pre-excitation current during a motor stop reduces power consumption during standby, and enables rapid startup of the torque.

**Plus! **Load slippage prevention

**Brake sequence function**

The highly scalable brake sequence function enables the output of a brake opening signal in the low-speed range. The function enables setting of the brake opening level individually for forward rotation and reverse rotation.

**Low-speed range speed control P gain**

When an inverter is connected to a lift, the inverter has a load immediately after the lift brake is released. Adjusting the speed control P gain in the low-speed range improves the response at low speed, and shortens the time from startup to brake opening.

**Plus! **Dedicated monitoring functions

**Overload detection function**

By outputting an overload detection signal when too much load (overload) is applied to a crane, this information can be transmitted to the superordinate controller. During constant speed operation, when the motor torque is equal to or higher than the torque setting for the time setting or longer, the overload detection signal is turned ON.

**Prenote! **Wide range applications

**Compliance with ship classification standards**

Using the recommended noise filter in combination with the inverter supports compliance with various countries’ ship classifications, such as NK, LR, DNV, ABS, BV, CCS, and KR. The FR-A810-CRN can be used for electric deck cranes on ship.

**Features**

**Start count monitor**

The inverter starting times can be counted. Confiming the starting times can be used to determine the timing of the maintenance, or can be used as a reference for system inspection or parts replacement.

**Falling detection**

Slippage during the start of a lift can be checked. When the commanded direction differs from the actual motor rotation direction, the falling detection signal is output.
Features

Suitable for various cranes to achieve fast, robust, and smooth operations

**Plus!** Reduction in tact time

**Anti-sway control**

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**Shortest-time torque startup function**

The time from the start command to when the brake opens is shortened. This will contribute to reduction in tact time.

**Magnetic flux command during pre-excitation**

Decreasing the pre-excitation current during a motor stop reduces power consumption during standby and enables rapid startup of the torque.

**Low-speed range speed control P gain**

The optimum distribution of the excitation current and torque current enables rapid startup of the torque.

**Plus!** Load slippage prevention

**Brake sequence function**

The highly scalable brake sequence function enables the output of a brake opening signal for the optimum brake operation calculated from the load torque or the speed. The function enables setting of the brake opening level individually for forward rotation and reverse rotation.

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Easier maintenance

**Longer service life**

*Long life components*

The service life of the cooling fans*1 and the capacitors*1*2 is now 10 years. The service life can be further extended by ON/OFF control of the cooling fans.

*1 Surrounding air temperature: Annual average of 40°C (free from corrosive gas, flammable gas, oil mist, dust and dirt).
*2 The design life is a calculated value from the LD rating. The value is not a guaranteed product life.

**Features**

- Output current: 80% of the inverter LD rating.
- Surrounding air temperature: Annual cooling fan.
- Extended by ON/OFF control of the cooling fans.
- The service life can be further extended by ON/OFF control of the cooling fans.
- The design life is a calculated value from the LD rating. The value is not a guaranteed product life.

Approach to the leading drive performance

**High response**

The improved speed response ensures a minimal speed fluctuation to maintain a constant speed when the load fluctuates.

- Speed response
- Real sensorless vector control
- 50 Hz*1 (A700: 20 Hz)
- Vector control*2
- 130 Hz*3 (A700: 50 Hz)

**High torque at low speed**

Our new inverter realizes smooth cargo handling work at low speed and high torque for the slow and stable movements required for heavy objects.

- Starting torque (at 0.3 Hz)
- Real sensorless vector control
- 200% (ND rating)
- Vector control*2
- 200% (ND rating)
- (150% of initial setting for 5.5K or higher)

Features

- Enhanced vibration resistance

Protection against vibration

A strong vibration may occur in some operating conditions, for example, during the crane traveling. Inverters with the components fixed on the circuit board with an adhesive, or the cables tied (fixed) together, are available for enhanced vibration resistance.

- Improved environmental resistance

Measures against dust, dirt, and corrosion

Using the inverter in the dusty environment may cause fault such as a short circuit. The inverter with circuit board coating (conforming to IEC60721-3-3 3C2/3S2) ensures reliability even in poor environments. Furthermore, the inverter with plated conductor is also available.

Control the machines as you desire - PLC function

**Inverter operation sequence customized for the machine**

Inverter control such as inverter operations triggered by input signals, signal output based on inverter operation status, and monitor output can be freely customized based on the machine specifications. Control programs can be created in sequence ladders using the inverter setup software (FR Configurator2) (to be supported soon).

**Application example 1:**

Position error correction

The traveled distance (total number of travel pulses) of each wheel is directly read from the encoder installed at the wheel. The pulses from the two wheels are then compared, and their speed is adjusted to synchronize the wheel positions. There is no need to use an external controller to offset speed, allowing high accuracy control.

**Application example 2:**

Wire rope length measurement

The travel axis reads the amount of lifting/lowering movement (encoder pulse) of the lift axis to calculate the wire rope length. The wire rope length according to the operating condition can be applied to the anti-sway control. The lifting/lowering speed can be slowed down when the rope length reaches a predetermined value to prevent the object from colliding into the lift axis drum, etc.
Features

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Delivering a comfortable inverter operating environment —FR Configurator2 (to be supported soon)

Easy USB cable connection
A USB connector (mini B connector) is provided as standard. The connection with a personal computer can be established easily without using a converter.

Remote operation
Importing trace data or parameter settings that have been copied in a USB memory device to FR Configurator2 enables analysis or adjustment at a remote place.

Intuitive user interface
Connected inverters are displayed in a tree view. Windows of each function can be switched using tabs, facilitating operations.

Efficient startup settings
• System setting
Automatic recognition of connected inverters can also be set. The station number, model, capacity, and any plug-in options of the connected inverters can also be set manually.

Easy pre-operation adjustment and operation check
• Parameter list
Parameters for selected station numbers can be displayed and changed. I/O signals can be assigned using settings by function.

Easy-to-follow platform facilitates easy maintenance
• Graph function
Inverter data can be sampled and displayed in a graphical format. Trace data can also be read and displayed in a graph.

Lineup

- Standard model

- Separated converter type

Inverter by rating

<table>
<thead>
<tr>
<th>Motor capacity (kW)</th>
<th>200 V class</th>
<th>400 V class</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.75</td>
<td>0.75</td>
<td>0.75</td>
</tr>
<tr>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
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<td>315</td>
<td>315</td>
<td>315</td>
</tr>
<tr>
<td>400</td>
<td>400</td>
<td>400</td>
</tr>
</tbody>
</table>

Source logic

CRN (dedicated to crane)
Features

Delivering a comfortable inverter operating environment
—FR Configurator2 (to be supported soon)

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Inverter data can be sampled and displayed in a graphical format. Trace data can also be read and displayed in a graph.

Lineup

• Standard model

<table>
<thead>
<tr>
<th>FR</th>
<th>A</th>
<th>8</th>
<th>2</th>
<th>0</th>
<th>0.4K</th>
<th>-1</th>
<th>60</th>
<th>CRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>5A</td>
<td>540</td>
<td>2.87</td>
<td>1.5</td>
<td>0.75</td>
<td>110</td>
<td>50</td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>5A</td>
<td>540</td>
<td>2.87</td>
<td>1.5</td>
<td>0.75</td>
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<td>0.75</td>
<td>110</td>
<td>50</td>
<td>2</td>
<td>60</td>
</tr>
</tbody>
</table>

• Separated converter type

<table>
<thead>
<tr>
<th>FR</th>
<th>A</th>
<th>8</th>
<th>4</th>
<th>2</th>
<th>315K</th>
<th>-1</th>
<th>60</th>
<th>CRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>5A</td>
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<td>0.75</td>
<td>110</td>
<td>50</td>
<td>2</td>
<td>60</td>
</tr>
</tbody>
</table>

Inverter by rating

• 200 V class

| Inverter model | FR-MA2D-1 | 1.5 | 2.2 | 7.5 | 110 | 50 | 2 | 60 |

• 400 V class

| Inverter model | FR-MA2D-1 | 1.5 | 2.2 | 7.5 | 110 | 50 | 2 | 60 |

1. Includes the overload rating applicable only for the selected inverter model.
## Standard specifications

### Rating (Standard model)

#### 200 V class

<table>
<thead>
<tr>
<th>Model</th>
<th>FR-A820-[] CRN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.4K</td>
</tr>
<tr>
<td>Applicable motor capacity (kW)</td>
<td>≤ 0.4</td>
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<tr>
<td>LD</td>
<td>0.75</td>
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<tr>
<td>ND (initial setting)</td>
<td>0.4</td>
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<tr>
<td>HD</td>
<td>≥ 2.0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td></td>
</tr>
<tr>
<td>SLD</td>
<td>0.75</td>
</tr>
<tr>
<td>ND (initial setting)</td>
<td>0.4</td>
</tr>
<tr>
<td>HD</td>
<td>≥ 2.0</td>
</tr>
</tbody>
</table>

- The applicable motor capacity indicated is the maximum capacity applicable for use of the Mitsubishi 4-pole standard motor.
- The % value of the overload current rating indicated is the ratio of the overload current to the inverter's rated output current. For repeated duty, leave time for the inverter and motor to return to or below the temperatures under 100% load.
- The maximum output voltage does not exceed the power supply voltage. The maximum output voltage can be changed within the setting range.
- The % value of the overload current rating indicated is the ratio of the overload current to the inverter's rated output current. For repeated duty, leave time for the inverter and motor to return to or below the temperatures under 100% load.
- The power supply capacity is the value when at the rated output current. The impedance at the power supply side (including those of the input reactor and cables) affects the rated input current.
- FR-DU08: "IP40 (except for the PU connector)"
### 400 V class

**Standard specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>FR-A840</th>
<th>FR-A840 [CRN]</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Model</td>
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<td>FR-A840 [CRN]</td>
</tr>
<tr>
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<td>--------------</td>
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<td>[2]</td>
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<td>[8]</td>
<td>[9]</td>
</tr>
<tr>
<td></td>
<td>[10]</td>
<td>[11]</td>
</tr>
</tbody>
</table>

#### Cooling system
- Self-cooling
- Forced air cooling

#### Approx. mass (kg)
- 2.8 to 2.8

#### Power supply
- Rated input current (A) =
- Rated input frequency (Hz) =

#### Output
- Rated output current =
- Rated output power =
- Rated output frequency =

#### Protection structure
- Enclosed type (IP20)
- Open type (IP00)

#### Permissible AC voltage fluctuation
- 323 to 450 V, 50 Hz/60 Hz

#### Rated AC voltage/frequency
- Three-phase 440 V, 50 Hz/60 Hz

#### Permissible AC voltage/orientation
- Three-phase 440 V, 50 Hz/60 Hz

#### Built-in brake transistor
- FR-BU2 (option)

#### Maximum brake torque
- 100% torque/2%ED
- 20% torque/continuous
- 10% torque/continuous

#### Rated voltage <, Rated input voltage
- 400 V

#### Output voltage
- 400 V

#### Rated input current (A) =
- 1.6 to 2.7
- 3.0 to 4.9
- 5.0 to 7.3

#### Permissible torque
- 100% torque/10%ED

#### Rated input voltage (V)/Load
- 380 to 416 V, 50 Hz/60 Hz

#### Rated input current (A) =
- 1.6 to 2.7
- 3.0 to 4.9
- 5.0 to 7.3

#### Rated input frequency (Hz) =
- 50 Hz/60 Hz

#### Power supply capacity (kVA) =
- 0.75 to 1.5
- 2.2 to 3.7
- 5.5 to 7.5

#### Rated capacity (kW) =
- 0.75 to 1.5
- 2.2 to 3.7
- 5.5 to 7.5

#### Applicable motor capacity (N) =
- 0.75 to 1.5
- 2.2 to 3.7
- 5.5 to 7.5

#### Enclosed type (IP20) Open type (IP00)
- FR-A840 [CRN] (except for the PU connector)

#### 0.2 kW motors can be used only under V/F control.
- However, the maximum point of the voltage waveform at the inverter output side is the power supply voltage multiplied by about √3.

#### With the built-in brake resistor
- ND rating reference value
- The rated input current is the value when rated input power is the actual power consumed by the inverter.
- The power supply capacity is the value when the rated input power is the actual power consumed by the inverter.
- The power supply capacity (including those of the input reactor and cables) affects the rated input current.

#### For the power supply exceeding 480 V, see Pr.377 Input voltage mode selection.
- A commercial brake resistor can be used to improve the braking capability of the inverter built-in brake. Please contact your sales representative for details.

---

**Notes:**
- **1.** The applicable motor capacity indicated is the maximum capacity applicable for use of the Mitsubishi 4-pole standard motor.
- **2.** The rated output capacity indicated assumes that the output voltage is 440 V.
- **3.** The % value of the overload current rating indicated is the ratio of the overload current to the inverter’s rated output current. For repeated duty, allow for the inverter and motor to return to or below the temperature under 100% load.
- **4.** The maximum output voltage does not exceed the power supply voltage. The maximum output voltage can be changed within the setting range.
- **5.** However, the maximum point of the voltage waveform at the inverter output side is the power supply voltage multiplied by about √3.
- **6.** With the built-in brake resistor
- **7.** ND rating reference value
- **8.** The rated input power is the actual power consumed by the inverter.
- **9.** The power supply capacity is the actual power consumed by the inverter.
- **10.** FR-DG20 IP40 (except for the PU connector)
- **11.** For the power supply exceeding 480 V, see Pr.377 Input voltage mode selection.
- **12.** A commercial brake resistor can be used to improve the braking capability of the inverter built-in brake. Please contact your sales representative for details.
Standard specifications

Rating (Separated converter type)

400 V class

- Inverter

<table>
<thead>
<tr>
<th>Model</th>
<th>FR-A842[] CRN</th>
<th>07700</th>
<th>08660</th>
<th>09620</th>
<th>10940</th>
<th>12120</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>315K</td>
<td>355K</td>
<td>400K</td>
<td>450K</td>
<td>500K</td>
</tr>
<tr>
<td>Applicable motor capacity (kW)</td>
<td>SLD</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>550</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>LD</td>
<td>355</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>550</td>
</tr>
<tr>
<td></td>
<td>ND</td>
<td>315</td>
<td>355</td>
<td>400</td>
<td>450</td>
<td>500</td>
</tr>
</tbody>
</table>

- Converter unit (FR-CC2)

<table>
<thead>
<tr>
<th>Model</th>
<th>FR-CC2-H[]</th>
<th>315K</th>
<th>355K</th>
<th>400K</th>
<th>450K</th>
<th>500K</th>
<th>560K</th>
<th>630K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable motor capacity (kW)</td>
<td>SLD</td>
<td>315</td>
<td>355</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>550</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>LD</td>
<td>315</td>
<td>355</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>550</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>ND</td>
<td>315</td>
<td>355</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>550</td>
<td>600</td>
</tr>
</tbody>
</table>

- Overload current rating (%)

<table>
<thead>
<tr>
<th>Overload current rating</th>
<th>SLD</th>
<th>LD</th>
<th>ND</th>
</tr>
</thead>
<tbody>
<tr>
<td>110% 60 s, 120% 3 s</td>
<td>587</td>
<td>521</td>
<td>417</td>
</tr>
<tr>
<td>120% 60 s, 150% 3 s</td>
<td>660</td>
<td>660</td>
<td>660</td>
</tr>
<tr>
<td>150% 60 s, 200% 3 s</td>
<td>733</td>
<td>733</td>
<td>733</td>
</tr>
</tbody>
</table>

- Rated voltage

Three-phase 380 to 500 V

Regenerative braking torque (when the converter unit (FR-CC2) is used)

10% torque/continuous

- Input power

430 to 780 VDC

Power supply voltage

Three-phase 380 to 500 V, 50 Hz/60 Hz

Permissible control power supply auxiliary input fluctuation

Frequency ±5%, voltage ±10%

- Protective structure (IEC 60529)

Open type (IP00)

- Cooling system

Forced air cooling

Approx. mass (kg)

163 163 243 243 243 243 243

- Power supply

Rated input AC voltage/frequency

Three-phase 380 to 500 V, 50 Hz/60 Hz

Permissible AC voltage fluctuation

Three-phase 323 to 550 V, 50 Hz/60 Hz

- Protective structure (IEC 60529)

Open type (IP00)

- DC reactor

Built-in

Approx. mass (kg)

210 213 215 215 218 220 224

- Protective structure (IEC 60529)

Open type (IP00)

- Cooling system

Forced air cooling

Approx. mass (kg)

163 163 243 243 243 243 243

- Overload current rating (%)

200% 60 s, 250% 3 s

- Rated voltage

430 to 780 VDC

- Rated input AC voltage/frequency

Three-phase 380 to 500 V, 50 Hz/60 Hz

- Permissible AC voltage fluctuation

Three-phase 323 to 550 V, 50 Hz/60 Hz

- Permissible frequency fluctuation

±6%

- Rated input power

910 883 770 666 562 1094 1212

- Power supply capacity (kVA)

465 521 587 660 733 833 924

- DC reactor

Built-in

Approx. mass (kg)

210 213 215 215 218 220 224

- The applicable motor capacity indicated is the maximum capacity applicable for use of the Mitsubishi 4-pole standard motor.

- The % value of the overload current rating indicated is the ratio of the overload current to the inverter's rated output current. For repeated duty, allow time for the inverter and motor to return to or below the temperatures under 100% load.

- The maximum output voltage does not exceed the power supply voltage. The maximum output voltage can be changed within the setting range.

- The maximum point of the voltage waveform at the inverter output side is the power supply voltage multiplied by approximately 1.15.

- ND rating reference value

- FR-DU08: IP40 (except for the PU connector)

- For the power voltage exceeding 480 V, set Pr.977 Input voltage mode selection.

- The permissible voltage imbalance ratio is 3% or less. (Imbalance ratio = (highest voltage between lines - average voltage between three lines) / average voltage between three lines)
## Standard specifications

### Common specifications

- **Control method**: 4-quadrant PWM control, high carrier frequency PWM control (selectable among V/F control, advanced magnetizing flux vector control, Real sensorless vector control), Optimun excitation control, vector control, and PM sensorless vector control.
- **Output frequency range**: 0.0 Hz to 500 Hz at 0 to 50 V/11 bits or 0 to 20 mAh (Approx. 11 bits for terminals 2 and 4, 0 to ±10 V/12 bits for terminal 1)
- **DC input voltage**: 200/230V (±10%)
- **DC current**: 4.5 A (±10%)
- **DC input current**: 14 A (±10%)
- **Frequency setting resolution**: Analog input ±1 Hz
- **Frequency setting accuracy**: ±0.1% of the set input frequency
- **Voltage/temperature characteristics**: Base frequency can be set from 0 to 590 Hz. Constant-torque variable-torque cannot be used for frequencies less than 10 Hz.

### Operational functions

- **Protection function**: Overload protection, Overcurrent protection, Overvoltage protection, Undervoltage protection, Phase loss, Overheat protection, Inrush current limit circuit failure, Magnetic pole position unknown, Option fault, Communication fault, Parameter write error, Copy operation error, 24 V external power supply operation, USB host error, Home position return uncompleted, 4 mA input fault, Signal loss detection, PID signal fault, Opposite rotation, Speed limit indication, Parameter copy, Safety stop, Maintenance signal output, USB host error, Home position return setting error, Communication fault (inverter), Analog input fault, USB communication fault, Safety control fault, Overspeed occurrence, Speed deviation detection, Pulse train input selection, Encoder phase fault, PTC thermistor operation, Option fault, Retry function, Carrier frequency selection, Fast-response failure time deceleration-to-stop function, stop-on-contact control, PLC function, If diagnosis, maintenance timer, current average measurement, Power factor indication, Speed control, torque control, pre-excitation,orque limit, test run, 24 V power supply input for control circuit, safety stop function, anti-sway control, low-speed range speed control, P gain, shortest-time torque startup, moving time adjustment function, brake sequence function.

### Input signals (twelve terminals)

- **Frequency setting signal**: PR.190 to PR.196 (output terminal function selection)
- **Pr.52 Operation panel main monitor selection
- **Pr.158 AM terminal function selection
- **Pr.54 FM/CA terminal function selection**

### Protective/warning function

- **Warning function**: 24 V relay output (control circuit), 24 V relay output (main circuit), 24 V relay output (external power supply operation), 24 V relay output (option circuit)

### Surrounded air temperature

- **5°C to +50°C (Non-condensing)**

### Storage temperature

- **-20°C to +60°C (Non-condensing)**

### Altitude/alteration

- **Maximum 1000 m above sealevel**: 5.9 m/s² or less at 10 to 55 Hz (direction of X, Y, Z axes)

---

1. The vector control is available only when a vector control compatible option is installed.
2. In the initial setting for the FR-A800, the range is from 0 to 50 Hz (±10%)
3. Available only for the standard model.
4. This protective function is not available in the initial status.
5. Temperature applicable for a short time, e.g. in transport.
6. For the installation in an altitude above 1000 m (up to 2500 m), derate the rated current 3% per 500 m.
7. 2.9 m/s² or less for the FR-A840-180K(5432) or higher.
### Outline dimensions

#### Standard model

- **200 V class**
- **400 V class**

#### Inverter model

<table>
<thead>
<tr>
<th>Inverter model</th>
<th>W</th>
<th>W1</th>
<th>H</th>
<th>H1</th>
<th>D</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR-A820-00023(0.4K)</td>
<td>110</td>
<td>95</td>
<td>260</td>
<td>245</td>
<td>110</td>
<td>125</td>
</tr>
<tr>
<td>FR-A820-00077(0.75K)</td>
<td>150</td>
<td>125</td>
<td>260</td>
<td>245</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>FR-A820-00126(1.5K)</td>
<td>220</td>
<td>195</td>
<td>300</td>
<td>285</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td>FR-A820-00170(2.2K)</td>
<td>250</td>
<td>230</td>
<td>400</td>
<td>380</td>
<td>190</td>
<td>190</td>
</tr>
<tr>
<td>FR-A820-00250(3.7K)</td>
<td>325</td>
<td>270</td>
<td>550</td>
<td>530</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>FR-A820-00310(5.5K)</td>
<td>435</td>
<td>380</td>
<td>525</td>
<td>525</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>FR-A820-00380(7.5K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>FR-A820-00490(11K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>FR-A820-00620(15K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>FR-A820-00770(18.5K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>FR-A820-01250(22K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>FR-A820-01800(30K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>FR-A820-01160(45K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>FR-A820-03250(110K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>FR-A820-04810(185K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>FR-A820-05470(220K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>FR-A820-06100(250K)</td>
<td>465</td>
<td>410</td>
<td>700</td>
<td>675</td>
<td>350</td>
<td>350</td>
</tr>
</tbody>
</table>

(Unit: mm)
- Separated converter type

FR-A842-07700(315K), 08660(355K)

FR-A842-09620(400K), 10940(450K), 12120(500K)

(Unit: mm)
Crane function parameters

The following marks are used to show the applicable control method: for V/F control, for Advanced magnetic flux vector control, for Real sensorless vector control, for vector control, and for PM sensorless vector control. (Parameters without any mark are valid for all controls.) denotes parameter numbers, denotes group parameter numbers.

Parameter list

The following parameters are dedicated to the FR-A800-CRN. Set the parameters according to applications.

<table>
<thead>
<tr>
<th>Pr.</th>
<th>Group</th>
<th>Name</th>
<th>Setting range</th>
<th>Minimum setting increment</th>
<th>Initial value</th>
<th>Refer to page</th>
<th>Customer setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>178 to 189</td>
<td>T700 to T711</td>
<td>Input terminal function selection</td>
<td>54-i</td>
<td>1</td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>190 to 196</td>
<td>M400 to M406</td>
<td>Output terminal function selection</td>
<td>221 to 223, 321 to 323-i</td>
<td>1</td>
<td>20, 21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>270</td>
<td>A200</td>
<td>Stop-on contact/load torque high-speed frequency control selection</td>
<td>0 to 3, 4, 5, 11, 13, 15</td>
<td>1</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>A160</td>
<td>Low-speed range speed control P gain 1</td>
<td>0 to 1000%, 9999</td>
<td>1%</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1401</td>
<td>A161</td>
<td>Low-speed range speed control P gain 2</td>
<td>0 to 1000%, 9999</td>
<td>1%</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1402</td>
<td>A162</td>
<td>Low-speed range gain corner frequency 1</td>
<td>0 to 60 Hz</td>
<td>0.01 Hz</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1403</td>
<td>A163</td>
<td>Low-speed range gain corner frequency 2</td>
<td>0 to 60 Hz</td>
<td>0.01 Hz</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1404</td>
<td>A164</td>
<td>Shortest-time torque startup selection</td>
<td>0, 1</td>
<td>0</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1405</td>
<td>A165</td>
<td>Overload detection time</td>
<td>0 to 10 s</td>
<td>0.1 s</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1406</td>
<td>A166</td>
<td>Inching prevention time</td>
<td>0 to 5 s</td>
<td>0.01 s</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1407</td>
<td>A167</td>
<td>Magnetic flux command during pre-excitation</td>
<td>0 to 100%</td>
<td>1%</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1408</td>
<td>A168</td>
<td>Brake opening current for reverse rotation</td>
<td>0 to 400%</td>
<td>0.1 %</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1409</td>
<td>A169</td>
<td>Second brake opening current for reverse rotation</td>
<td>0 to 400%</td>
<td>0.1 %</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1410</td>
<td>A170</td>
<td>Starting times lower 4 digits</td>
<td>0 to 9999</td>
<td>1</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1411</td>
<td>A171</td>
<td>Starting times upper 4 digits</td>
<td>0 to 9999</td>
<td>1</td>
<td>22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1 For other settings, refer to the Instruction Manual (Detailed) of the FR-A800 inverter.
*2 For the initial setting of each parameter, refer to the Instruction Manual (Detailed) of the FR-A800 inverter.

Refer to the FR-A800 Instruction Manual (Detailed) for the instructions to set each parameter.
# Crane function parameters

## Parameter details

### Low-speed range speed control P gain

<table>
<thead>
<tr>
<th>Pr</th>
<th>Setting range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1400</td>
<td>0 to 1000%</td>
<td>Set the proportional gain during speed control in the low-speed range. (Setting this parameter higher improves the tractability for speed command changes. It also reduces the speed fluctuation caused by external disturbances.)</td>
</tr>
<tr>
<td>1401</td>
<td>0 to 1000%</td>
<td>Low-speed range speed control P gain 1 disabled</td>
</tr>
<tr>
<td>1402</td>
<td>0 to 60 Hz</td>
<td>Second function of Pr.1400 (enabled when RT signal ON)</td>
</tr>
<tr>
<td>1403</td>
<td>0 to 60 Hz</td>
<td>Low-speed range speed control P gain 2 disabled</td>
</tr>
</tbody>
</table>

### Shortest-time torque startup

<table>
<thead>
<tr>
<th>Pr</th>
<th>Setting range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1404</td>
<td>0 (Initial value)</td>
<td>Shortest-time torque startup disabled</td>
</tr>
</tbody>
</table>

- **The torque is started up in the shortest time.**
- **When an inverter is connected to a lift, the inverter has a load immediately after the lift brake is released. For lift applications, slow torque startup may cause a delay in the brake opening. Using the shortest-time torque startup function shortens the time from startup to brake opening. This will contribute to a reduction in tact time.**

### Low-speed range speed control P gain operation

- **The P gain operation during speed control in the low-speed range is determined by the Pr.1402 and Pr.1403 settings.**

Refer to the FR-A800 Instruction Manual (Detailed) for the instructions to set each parameter.
Inching prevention

- By setting a waiting time after the inverter is stopped until the inverter is restarted, inching in the setting time can be prevented.
- When the inverter is repeatedly started and stopped for a short time, the overcurrent may occur due to the effect of the motor residual magnetic flux. Adjust the waiting time after the inverter is stopped until the inverter is restarted to suppress current.

**Magnetic flux command during pre-excitation**

- Adjusting the magnetic flux command during pre-excitation reduces the excitation ratio and power consumption during standby.

**Load torque high-speed frequency control (mode 2)**

- Load torque high-speed frequency control is a function that automatically sets the operable frequency according to the load.
- After starting the inverter, the inverter runs at high frequency with a light load, or at low frequency with a heavy load, depending on the value of the current. When light loads are moved up or down by a crane, the speed will accelerate automatically, which contributes to reduction in tact time.

Refer to the FR-A800 Instruction Manual (Detailed) for the instructions to set each parameter.
**Crane function parameters**

### Operation of load torque high-speed frequency control (mode 2)
- The maximum frequency (Pr.4 or Pr.5) is used as the target frequency for acceleration.
- When the output current (Iq) reaches or exceeds the torque current limit value (Iq limit level), acceleration is interrupted.
- When the output current (Iq) decreases by the interruption, acceleration starts again.
- By switching between acceleration and stopping, acceleration is controlled so that the torque current matches the torque current limit value.

### Countermeasure against winding expansion (droop control 2)
- When a wire rope is wound, the motor torque increases along with enlargement in the winding diameter (winding expansion). Set the droop control 2 to compensate the output frequency corresponding to the motor torque increase.
- As a countermeasure against winding expansion, set Pr.288 Droop function activation selection = Droop gain.

### Constant speed signal (Y223 signal)
- When the range of the command frequency fluctuations is 2 Hz or less while the inverter is running, the constant speed signal (Y223) is turned ON. When the inverter stops, or when the range of the command frequency fluctuations is more than 2 Hz, the constant speed signal (Y223) is turned OFF.
- For the Y223 signal, set "232 (positive logic) or 332 (negative logic)" in one of Pr.190 to Pr.196 (output terminal function selection) to assign the function to the output terminal.

### Overload detection (Pr.864, Pr.1405, TU2 signal)
- During constant speed operation (the Y223 signal ON), when the motor torque is equal to or higher than the value set in Pr.864 Torque detection setting until the overload detection signal (TU2) is output.
- For the TU2 signal, set "221 (positive logic) or 321 (negative logic)" in one of Pr.190 to Pr.196 (output terminal function selection) to assign the function to the output terminal.

---

**Overload detection**

<table>
<thead>
<tr>
<th>Pr.</th>
<th>Setting range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>864</td>
<td>0 to 400%</td>
<td>Set the torque value where the TU2 signal turns ON</td>
</tr>
<tr>
<td>1405</td>
<td>0 to 10 s</td>
<td>Set the time from when the motor torque reaches or exceeds the Pr.864 setting until the overload detection signal (TU2) is output.</td>
</tr>
</tbody>
</table>

---

Refer to the FR-A800 Instruction Manual (Detailed) for the instructions to set each parameter.
Crane function parameters

### Anti-sway control

<table>
<thead>
<tr>
<th>Name</th>
<th>Setting range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1072 A310 DC brake judgment time for anti-sway control operation</td>
<td>0 to 10 s</td>
<td>Set the time from when the output frequency becomes the Pr.10 DC injection brake operation frequency or less to when the DC injection brake (zero speed control or the servo lock) operation starts.</td>
</tr>
<tr>
<td>1073 A311 Anti-sway control operation selection</td>
<td>0 (Initial value)</td>
<td>Anti-sway control disabled</td>
</tr>
<tr>
<td>1074 A312 Anti-sway control frequency</td>
<td>0.05 to 3 Hz</td>
<td>Set a swinging frequency of the object. Anti-sway control is performed using a swinging frequency estimated by the inverter according to the settings of Pr.1077 to Pr.1079</td>
</tr>
<tr>
<td>1075 A313 Anti-sway control depth</td>
<td>0 to 3</td>
<td>0 (Deep) → 3 (Shallow)</td>
</tr>
<tr>
<td>1076 A314 Anti-sway control width</td>
<td>0 to 3</td>
<td>0 (Narrow) → 3 (Wider)</td>
</tr>
<tr>
<td>1077 A315 Rope length</td>
<td>0.1 to 50 m</td>
<td>Set the crane rope length.</td>
</tr>
<tr>
<td>1078 A316 Trolley weight</td>
<td>1 to 50000 kg</td>
<td>Set the trolley weight.</td>
</tr>
<tr>
<td>1079 A317 Load weight</td>
<td>1 to 50000 kg</td>
<td>Set the weight of the object.</td>
</tr>
</tbody>
</table>

- When an object is moved by a crane, swinging is suppressed on the crane’s traveling axis.
- Anti-sway control can be disabled by the anti-sway control disabled signal (X54).

### Falling detection

<table>
<thead>
<tr>
<th>Name</th>
<th>Setting range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>870 M400 Speed detection hysteresis</td>
<td>0 to 5 Hz</td>
<td>Set the hysteresis width for the detected frequency. When the commanded direction differs from the actual motor rotation direction, the actual motor speed is higher than the value set in Pr.870 Speed detection hysteresis, the falling detection signal (Y222) is turned ON.</td>
</tr>
</tbody>
</table>

- When the commanded direction differs from the actual motor rotation direction, and the actual motor speed is higher than the value set in Pr.870 Speed detection hysteresis, the falling detection signal (Y222) is turned ON.
- For the Y222 signal, set "222 (positive logic) or 322 (negative logic)" in any of Pr.190 to Pr.196 (output terminal function selection) to assign the function to the output terminal.

### Anti-sway control disabled signal (X54 signal)

- When anti-sway control is enabled, the travel distance between the positions where the crane starts deceleration and where the crane stops becomes longer. For an emergency stop by a system using a position confirmation sensor, disable anti-sway control to shorten the stopping distance.
- When anti-sway control is enabled (Pr.1073 Anti-sway control operation selection="1"), turning ON the anti-sway control disabled signal (X54) disables anti-sway control.
- For the X54 signal, set "54" in any of Pr.178 to Pr.189 (input terminal function selection) to assign the function to the input terminal.

Refer to the FR-A800 Instruction Manual (Detailed) for the instructions to set each parameter.
Crane function parameters

- The brake sequence function enables setting of the brake opening level individually for forward rotation and reverse rotation.

### Brake opening current level setting for reverse rotation

(For the brake sequence function)

<table>
<thead>
<tr>
<th>Pr</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>278</td>
<td>A100 Brake opening frequency</td>
<td>Set the brake opening time during reverse rotation. Set between 50 and 90% because load slippage is more likely to occur at a start setting is too low.</td>
</tr>
</tbody>
</table>
| 280| A102 Brake opening current selection | - Brake opening current at start  
- Brake opening current at stop |
| 282| A104 Brake operation frequency | - Brake operation frequency at start  
- Brake operation frequency at stop |
| 284| A106 Deceleration detection function selection | - Over speed detection frequency |
| 292| F500 Automatic acceleration/ deceleration | - Brake opening current selection |
| 640| A109 Brake operation frequency selection | - Brake opening current selection |
| 642| A120 Second brake opening frequency | - Brake opening current at start  
- Brake opening current at stop |
| 644| A122 Second brake opening current detection time | - Brake operation time at start  
- Brake operation time at stop |
| 646| A124 Second brake operation frequency | - Brake operation time at start  
- Brake operation time at stop |
| 648| A126 Second deceleration detection function selection | - Brake opening current selection |
| 650| A128 Second brake operation frequency selection | - Brake opening current for reverse rotation |
| 1408| A168 Brake opening current for reverse rotation | - Brake opening current selection  
- Brake opening current selection in the second brake sequence function  
- Brake opening current selection in the second brake sequence function |

### Start count monitor

- The inverter starting times can be counted.
- Confirming the starting times can be used to determine the timing of the maintenance, or can be used as a reference for system inspection or parts replacement.

<table>
<thead>
<tr>
<th>Pr</th>
<th>Setting range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1410</td>
<td>A170 Starting times lower 4 digits</td>
<td>Displays the lower four digits of the number of the inverter starting times.</td>
</tr>
<tr>
<td>1411</td>
<td>A171 Starting times upper 4 digits</td>
<td>Displays the upper four digits of the number of the inverter starting times.</td>
</tr>
</tbody>
</table>

### When the start signal is input to the inverter, the inverter starts running, and when the output frequency reaches the frequency set in Pr.278 Brake opening frequency and the output current is equal to or greater than the Brake opening current setting, the brake opening request signal (BOF) is output after the time set in Pr.280 Brake opening current detection time.
Warranty

When using this product, make sure to understand the warranty described below.

1. Warranty period and coverage

We will repair any failure or defect (hereinafter referred to as "failure") in our FA equipment (hereinafter referred to as the "Product") arisen during warranty period at no charge due to causes for which we are responsible through the distributor from which you purchased the Product or our service provider. However, we will charge the actual cost of dispatching our engineer for an on-site repair work on request by customer in Japan or overseas countries. We are not responsible for any on-site readjustment and/or trial run that may be required after a defective unit are repaired or replaced.

[Term]
The term of warranty for Product is twelve months after your purchase or delivery of the Product to a place designated by you or eighteen months from the date of manufacture whichever comes first ("Warranty Period"). Warranty period for repaired Product cannot exceed beyond the original warranty period before any repair work.

[Limitations]
(1) You are requested to conduct an initial failure diagnosis by yourself, as a general rule. It can also be carried out by us or our service company upon your request and the actual cost will be charged. However, it will not be charged if we are responsible for the cause of the failure.
(2) This limited warranty applies only when the condition, method, environment, etc. of use are in compliance with the terms and conditions and instructions that are set forth in the instruction manual and user manual for the Product and the caution label affixed to the Product.
(3) Even during the term of warranty, the repair cost will be charged on you in the following cases;
   1) a failure caused by your improper storing or handling, carelessness or negligence, etc., and a failure caused by your hardware or software problem
   2) a failure caused by any alteration, etc. to the Product made on your side without our approval
   3) a failure which may be regarded as avoidable, if your equipment in which the Product is incorporated is equipped with a safety device required by applicable laws and has any function or structure considered to be indispensable according to a common sense in the industry
   4) a failure which may be regarded as avoidable if consumable parts designated in the instruction manual, etc. are duly maintained and replaced
   5) any replacement of consumable parts (condenser, cooling fan, etc.)
   6) a failure caused by external factors such as inevitable accidents, including without limitation fire and abnormal fluctuation of voltage, and acts of God, including without limitation earthquake, lightning and natural disasters
   7) a failure generated by an unforeseeable cause with a scientific technology that was not available at the time of the shipment of the Product from our company
   8) any other failures which we are not responsible for or which you acknowledge we are not responsible for

2. Term of warranty after the stop of production

(1) We may accept the repair at charge for another seven (7) years after the production of the product is discontinued. The announcement of the stop of production for each model can be seen in our Sales and Service, etc.
(2) Please note that the Product (including its spare parts) cannot be ordered after its stop of production.

3. Service in overseas

Our regional FA Center in overseas countries will accept the repair work of the Product; however, the terms and conditions of the repair work may differ depending on each FA Center. Please ask your local FA center for details.

4. Exclusion of responsibility for compensation against loss of opportunity, secondary loss, etc.

Whether under or after the term of warranty, we assume no responsibility for any damages arisen from causes for which we are not responsible, any losses of opportunity and/or profit incurred by you due to a failure of the Product, any damages, secondary damages or compensation for accidents arisen under a specific circumstance that are foreseen or unforeseen by our company, any damages to products other than the Product, and also compensation for any replacement work, readjustment, start-up test run of local machines and the Product and any other operations conducted by you.

5. Change of Product specifications

Specifications listed in our catalogs, manuals or technical documents may be changed without notice.

6. Application and use of the Product

(1) For the use of our product, its applications should be those that may not result in a serious damage even if any failure or malfunction occurs in product, and a backup or fail-safe function should operate on an external system to product when any failure or malfunction occurs.

(2) Our product is designed and manufactured as a general purpose product for use at general industries. Therefore, applications substantially influential on the public interest for such as atomic power plants and other power plants of electric power companies, and also which require a special quality assurance system, including applications for railway companies and government or public offices are not recommended, and we assume no responsibility for any failure caused by these applications when used.

In addition, applications which may be substantially influential to human lives or properties for such as airlines, medical treatments, railway service, incineration and fuel systems, man-operated material handling equipment, entertainment machines, safety machines, etc. are not recommended, and we assume no responsibility for any failure caused by these applications when used.

We will review the acceptability of the abovementioned applications, if you agree not to require a specific quality for a specific application. Please contact us for consultation.
MEMO

YOUR SOLUTION PARTNER

Mitsubishi Electric offers a wide range of automation equipment from PLCs and HMIs to CNC and EDM machines.

A NAME TO TRUST

Since its beginnings in 1870, some 45 companies use the Mitsubishi name, covering a spectrum of finance, commerce, and industry.

The Mitsubishi brand name is recognized around the world as a symbol of premium quality.

Mitsubishi Electric Corporation is active in space development, transportation, semiconductors, energy systems, communications and information processing, audio-visual equipment, and home electronics, building and energy management, and automation systems, and has 237 factories and laboratories worldwide in over 121 countries.

This is why you can rely on Mitsubishi Electric automation solution - because we know first hand about the need for reliable, efficient, easy-to-use automation and control in our own factories.

As one of the world's leading companies with a global turnover of over 4 trillion Yen (over $40 billion), employing over 100,000 people, Mitsubishi Electric has the resources and the commitment to deliver the ultimate in service and support as well as the best products.

Low-voltage Circuit Breakers, Motor Starters
High-voltage Circuit Breakers, High-voltage Contactors
Energy Saving Supporting Devices, Power Monitoring Products
Programmable Controllers, HMI (Human Machine Interface)
AC Servo, Three-phase Motors, IPM Motors
Inverters, Gear Drives
Computerized Numerical Controllers (CNCs)
Industrial Robots
Electrical Discharge Machines, Laser Processing Machines, Electron Beam Machines
Distribution Transformers
PressPack' Ventilation Fans, Uninterruptible Power Supplies
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INVERTER
FR-A800 Plus

The optimum functions for cranes are added.

- Reduction in tact time
- Load slippage prevention
- Dedicated monitoring functions
- Applicability in a wide range of industries
- Easier maintenance
- Approach to the leading drive performance

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001 (standards for quality assurance management systems).