

# Low Harmonics Regenerative Matrix Converter

# U1000

ENVIRONMENTALLY  
FRIENDLY WAYS  
TO

SAVE  
ENERGY

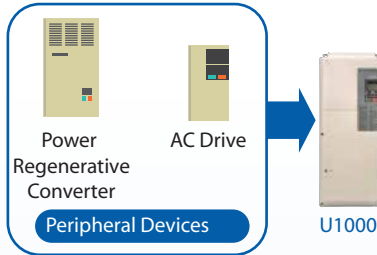


Leader

1

Compact

ALL-IN-ONE



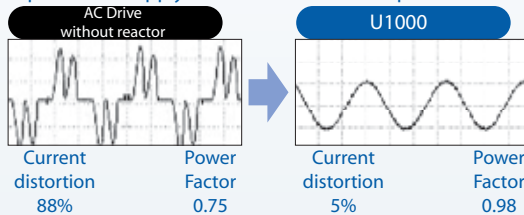
- . Footprint reduced by 65%
- . Wiring reduced by 70% (20 to 6)
- . Weight reduced by 81%

\* Example for 400V 30kW

2

High Power Factor and  
Power Supply Harmonic Suppression

Input Power Supply Current Waveform Comparison



- . Current Distortion < 5%
- . Power Factor > 0.98
- . Conforms to IEEE 519

3

Greater Efficiency



- . 29% less power loss
- . 3% increased efficiency

Application  
Examples

Lift applications with heavy repetitive loads and regenerative power



UL LISTED CE RoHS Compliant

High Power Factor and  
Power Supply Harmonic Suppression



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Certified for  
ISO9001 and  
ISO14001



JQA- 0422



JQA-EM0498



平成27年度  
省エネ大賞  
(製品・ビジネスモデル部門)  
主催：一般財団法人省エネセンター

2015  
Grand Prize for  
Excellence in Energy  
Efficiency and  
Conservation

(Product Category &  
Business Model  
Category)

Sponsor: The Energy  
Conservation Center,  
Japan

# U 1000 Standard Specifications

## 200 V Class

ND = Normal Duty, HD = Heavy Duty

| Model                        | CIMR   | -UT 2A  | 0028   | 0042 | 0054 | 0068 | 0081 | 0104 | 0130 | 0154 | 0192 | 0248 |     |
|------------------------------|--|---|--|------|------|------|------|------|------|------|------|------|-----|
| Rated Input/Output           | Rated Output Current *1                          | A   | ND   | 28   | 42   | 54   | 68   | 81   | 104  | 130  | 154  | 192  | 248 |
|                              |  | HD  | 22   | 28   | 42   | 54   | 68   | 81   | 104  | 130  | 154  | 192  | 248 |
|                              | Rated Input Capacity                             | kVA   | ND   | 12   | 17   | 22   | 28   | 33   | 43   | 54   | 64   | 80   | 103 |
|                              |  | kVA   | HD   | 9    | 12   | 17   | 22   | 28   | 33   | 43   | 54   | 64   | 80  |
|                              | Rated Input Current                              | A   | ND   | 25   | 38   | 49   | 62   | 73   | 95   | 118  | 140  | 175  | 226 |
|                              |  | A   | HD   | 20   | 25   | 38   | 49   | 62   | 73   | 95   | 118  | 140  | 175 |
| Max. Output Voltage          |  | Depends on input voltage  |  |      |      |      |      |      |      |      |      |      |     |
| Max. Output Frequency        |  | 400 Hz  |  |      |      |      |      |      |      |      |      |      |     |
| Power Supply Characteristics | Rated Voltage/Rated Frequency                    |   | Three-phase AC power supply : 200 to 240 Vac 50/60 Hz  |      |      |      |      |      |      |      |      |      |     |
|                              | Allowable Voltage Fluctuation                    |   | -15% to +10%   |      |      |      |      |      |      |      |      |      |     |
|                              | Allowable Frequency Fluctuation                  |   | ±3% (Frequency fluctuation rate: 1 Hz/ 100 ms or less)   |      |      |      |      |      |      |      |      |      |     |
|                              | Allowable Power Voltage Imbalance between Phases |   | less than 2%   |      |      |      |      |      |      |      |      |      |     |
| Control Characteristics      | Control Method                                   |   | Sine-wave PWM [V/f control, V/f Control with PG, Open Loop Vector Control, Closed Loop Vector Control, Open Loop Vector Control for PM, Advanced Open Loop Vector Control for PM, Closed Loop Vector Control for PM (switched by parameter setting)] |      |      |      |      |      |      |      |      |      |     |
|                              | Harmonic Current Distortion Rate *2              |   | 5% or less (IEEE 519)  |      |      |      |      |      |      |      |      |      |     |
|                              | Input Power Factor                               |   | 0.98 or more (for rated load)  |      |      |      |      |      |      |      |      |      |     |
|                              | Overload Tolerance                               |   | HD Rating : 150% of rated output current for 60s, ND Rating: 120% of rated output current for 60s (Derating may be required for repetitive loads)  |      |      |      |      |      |      |      |      |      |     |
| Status Output                |  | 1 C -relay output at failures, 1 a contact output (multi-function) during operation, 2 multi-function PHC outputs selectable at alarms, 2 multi-function analog outputs selectable for analog outputs, Pulse train output: 1 (multi-function) |  |      |      |      |      |      |      |      |      |      |     |

## 400 V Class

| Model                        | CIMR   | -UT 4A  | 0011   | 0014 | 0021 | 0027 | 0034 | 0040 | 0052 | 0065 | 0077 | 0096 | 0124 | 0156 | 0180 | 0216 | 0240 | 0302 | 0361 | 0414 | 0477 | 0590 | 0720 | 0900 | 0930 |     |
|------------------------------|--|---|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Rated Input/Output           | Rated Output Current *1                          | A   | ND   | 11   | 14   | 21   | 27   | 34   | 40   | 52   | 65   | 77   | 96   | 124  | 156  | 180  | 216  | 240  | 302  | 361  | 414  | 477  | 590  | 720  | 900  | 930 |
|                              |  | HD  | 9.6  | 11   | 14   | 21   | 27   | 34   | 40   | 52   | 65   | 77   | 96   | 124  | 156  | 180  | 216  | 240  | 302  | 361  | 414  | 477  | 590  | 720  | 900  | 900 |
|                              | Rated Input Capacity                             | kVA   | ND   | 9    | 12   | 17   | 22   | 28   | 33   | 43   | 54   | 64   | 80   | 103  | 130  | 150  | 180  | 200  | 251  | 300  | 344  | 396  | 490  | 598  | 748  | 773 |
|                              |  | kVA   | HD   | 8    | 9    | 12   | 17   | 22   | 28   | 33   | 43   | 54   | 64   | 80   | 103  | 130  | 150  | 180  | 200  | 251  | 300  | 344  | 396  | 490  | 598  | 748 |
|                              | Rated Input Current                              | A   | ND   | 10   | 13   | 19   | 25   | 31   | 36   | 47   | 59   | 70   | 87   | 113  | 142  | 164  | 197  | 218  | 275  | 329  | 377  | 434  | 537  | 655  | 819  | 846 |
|                              |  | A   | HD   | 8.7  | 10   | 13   | 19   | 25   | 31   | 36   | 47   | 59   | 70   | 87   | 113  | 142  | 164  | 197  | 218  | 275  | 329  | 377  | 434  | 537  | 655  | 819 |
| Max. Output Voltage          |  | Depends on input voltage  |  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
| Max. Output Frequency        |  | 400 Hz  |  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
| Power Supply Characteristics | Rated Voltage/Rated Frequency                    |   | Three-phase AC power supply : 380 to 480 Vac 50/60 Hz  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
|                              | Allowable Voltage Fluctuation                    |   | -15% to +10%   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
|                              | Allowable Frequency Fluctuation                  |   | ±3% (Frequency fluctuation rate: 1 Hz/ 100 ms or less)   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
|                              | Allowable Power Voltage Imbalance between Phases |   | less than 2%   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
| Control Characteristics      | Control Method                                   |   | Sine-wave PWM [V/f control, V/f Control with PG, Open Loop Vector Control, Closed Loop Vector Control, Open Loop Vector Control for PM, Advanced Open Loop Vector Control for PM, Closed Loop Vector Control for PM (switched by parameter setting)] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
|                              | Harmonic Current Distortion Rate *2              |   | 5% or less (IEEE 519)  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
|                              | Input Power Factor                               |   | 0.98 or more (for rated load)  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
|                              | Overload Tolerance                               |   | HD Rating : 150% of rated output current for 60s, ND Rating : 120% of rated output current for 60s (Derating may be required for repetitive loads)   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
| Status Output                |  | 1 C -relay output at failures, 1 a contact output (multi-function) during operation, 2 multi-function PHC outputs selectable at alarms, 2 multi-function analog outputs selectable for analog outputs, Pulse train output: 1 (multi-function) |  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |

\* 1 : The rated output current of the drive should be equal to or greater than the motor rated current.

\* 2 : When the harmonic current distortion rate is 5% or less, the maximum output voltage is calculated by input power voltage × 0.87.

## U 1000 Dimensions mm

| Voltage Class       |            | 200 V Class |      |      |      |      |      |      |      |      |      |      |      | 400 V Class |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------|------------|-------------|------|------|------|------|------|------|------|------|------|------|------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Model               | CIMR - UT  | 0028        | 0042 | 0054 | 0068 | 0081 | 0104 | 0130 | 0154 | 0192 | 0248 | 0011 | 0014 | 0021        | 0027 | 0034 | 0040 | 0052 | 0065 | 0077 | 0096 | 0124 | 0156 | 0180 | 0216 | 0240 | 0302 | 0361 | 0414 | 0477 | 0590 | 0720 | 0900 | 0930 |      |
| Open-Chassis (IP00) | Width (W)  | 250         | 264  | 264  | 264  | 264  | 264  | 264  | 415  | 415  | 490  | 250  | 250  | 250         | 250  | 250  | 264  | 264  | 264  | 264  | 264  | 264  | 264  | 415  | 415  | 490  | 490  | 695  | 695  | 695  | 1070 | 1070 | 1210 | 1210 | 1070 |
|                     | Height (H) | 480         | 650  | 650  | 650  | 650  | 816  | 816  | 990  | 990  | 1132 | 480  | 480  | 480         | 480  | 480  | 650  | 650  | 650  | 650  | 650  | 816  | 816  | 990  | 990  | 1132 | 1132 | 1132 | 1132 | 1350 | 1350 | 1835 | 1835 | 1835 |      |
|                     | Depth (D)  | 360         | 420  | 420  | 420  | 420  | 450  | 450  | 403  | 403  | 450  | 360  | 360  | 360         | 360  | 360  | 420  | 420  | 420  | 420  | 420  | 450  | 450  | 403  | 403  | 450  | 450  | 450  | 450  | 445  | 445  | 445  | 445  | 445  |      |

\* : This number indicates the voltage class (2: 200 V class, 4: 400 V class).

Note: Optional NEMA Type 1 kit is required for Enclosed Wall-Mounted (NEMA Type 1) models.

| Model                            | EUJ7118    | 00   | 10   | 20   |
|----------------------------------|------------|------|------|------|
| U1000 Standard Configuration     | Width (W)  | 700  | 700  | 700  |
| Devices (Harmonic Filter Module) | Height (H) | 1350 | 1350 | 1350 |
|                                  | Depth (D)  | 432  | 432  | 432  |

### Model Number Key

