Regenerative matrix drive

- Energy saving 4Q operation
- Automatic motor data adjustment
- Highly efficient AC to AC direct conversion
- Simple installation and minimum maintenance
- Safety according to SIL3 STO function
- EMC filter, low harmonics input current (THDi < 5%), regenerative converter and frequency drive in one
- Communication options: EtherCAT, EtherNet/IP, PROFINET, DeviceNet, PROFIBUS-DP, Modbus TCP/IP, CANopen, MECHATROLINK-II and POWERLINK
- CE, UL, cUL and TÜV

Ratings

- 200 V class three-phase: 28 A to 248 A
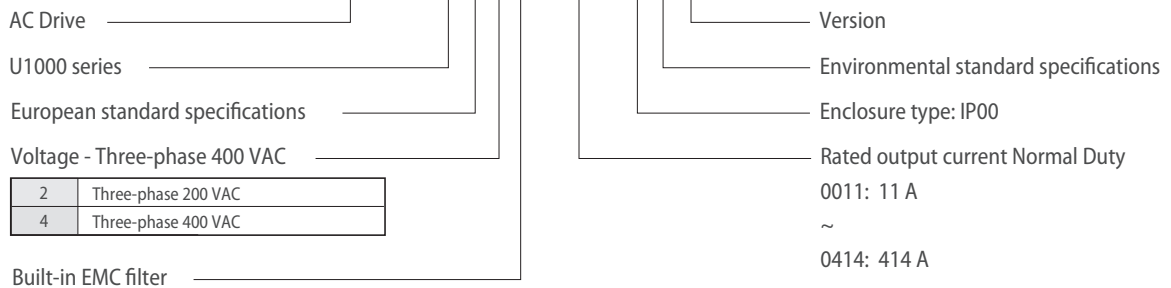- 400 V class three-phase: 11 A to 414 A

Variable Speed Drives

System configuration
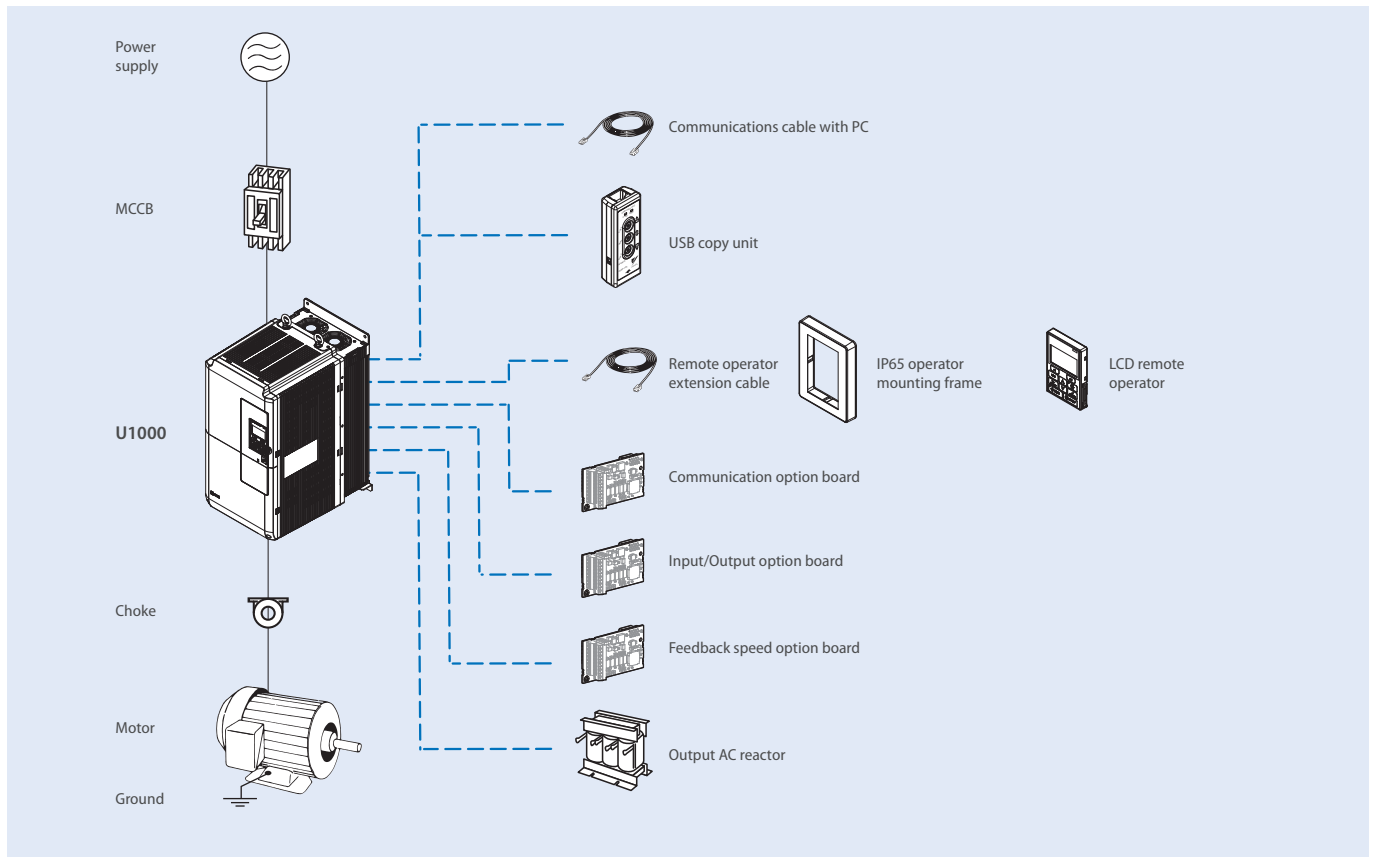
Note: U1000 includes EMC filter, input AC reactor, regenerative converter and frequency drive.

Type designation

CIMR-UC4E0414AAA

AC Drive

U1000 series

European standard specifications

Voltage - Three-phase 400 VAC

| 2 | Three-phase 200 VAC |
| 4 | Three-phase 400 VAC |

Built-in EMC filter

Version

Environmental standard specifications

Enclosure type: IP00

Rated output current Normal Duty
0011: 11 A
~
0414: 414 A

Specifications

Common specifications

Model number: CIMR-UC_E_		Specifications
Control functions	Control methods	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
	Frequency control range	0.01 to 400 Hz
	Frequency tolerance	Digital set value: within ±0.01% of the max. output frequency (−10 to 40°C) Analog set value: within ±0.1% of the max. output frequency (25±10°C)
	Frequency setting resolution	Digital set value: 0.01 Hz Analog set value: 1/2048 of the maximum output frequency setting (11 bit plus sign)
	Output frequency resolution	0.001 Hz
	Frequency set value	Main speed frequency reference: DC −10 to 10 V (20 kΩ), DC 0 to 10 V (20 kΩ), 4 to 20 mA (250 Ω), 0 to 20 mA (250 Ω) Main speed reference: Pulse train input (max. 32 KHz)
	Starting torque	150% at 3 Hz (V/f control, V/f control with PG), 200% at 0.3 Hz[*1] (Open loop vector control), 200% at 0.0 r/min[*1] (Closed loop vector control, Advanced open loop vector control for PM, Closed loop vector control for PM), 100% at 3 Hz (Open loop vector control for PM)
	Speed control range	1:40 (V/f control, V/f control with PG), 1:200 (Open loop vector control), 1:1500 (Closed loop vector control, Closed loop vector control for PM), 1:20 (Open loop vector control for PM), 1:100 (Advanced open loop vector control for PM)
	Speed control accuracy[*2]	±0.2% in Open loop vector control (25°C ±10°C), ±0.02% in Closed loop vector control (25°C ±10°C)
	Speed response	10 Hz in Open loop vector control (25°C ±10°C), 250 Hz in Closed loop vector control (25°C ±10°C)
	Torque limit	Parameters setting allow separate settings in four quadrants (available in Open loop vector control. Closed loop vector control, Advanced open loop vector control for PM and Closed loop vector control for PM)
	Accel/Decel time	0.0 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)
	Braking torque	Same values as overload tolerance
	V/f characteristics	User-selected programs and V/f preset patterns possible
	Main control functions	Torque control, Droop control, Speed/torque control switching, Feedforward control, Zero-servo control, Momentary power loss ride-thru, Speed search, Synchronous transfer with commercial power supply, Overtorque/Undertorque detection, Torque limit, 17-step speed (max), Accel/Decel time switch, S-curve Accel/Decel, 3-wire sequence, Auto-tuning (rotational, stationary), Dwell, Cooling fan on/off switch, Slip compensation, Torque compensation, Frequency jump, Upper/Lower limits for frequency, DC injection braking at start and stop, PID control (with sleep function), Energy saving control, MEMOBUS/Modbus comm. (RS-422/RS-485 max, 115.2 kbps), Fault restart, Application presets, DriveWorksEZ (customized function), Removable terminal block with parameter backup function, Online tuning, Over-excitation deceleration, Inertia (ASR) tuning, High frequency injection…
Protection functions	Power supply regeneration	Available
	Motor protection	Electronic thermal overload relay
	Momentary overcurrent protection	Drive stops when output current reaches about 200% of the rated current
	Overload protection	Drive stops after 60 s at 150% of rated Heavy Duty output current[*3]
	Overvoltage protection	Stops when input voltage exceeds approx. 315 V for 200 V models or 630 V for 400 V models
	Undervoltage protection	Stop when input voltage falls below approx. 150 V for 200 V models or 300 V for 400 V models
	Momentary power loss ride-thru	Immediately stop after 2 ms or longer power loss[*4] Continuous operation during power loss than 2 s (standard)[*5]
	Heatsink overheat protection	Thermistor
	Stall prevention	Stall prevention is available during acceleration, deceleration and during run
	Ground protection	Electronic circuit protection[*6]
	Charge LED of capacitor for control power supply	Remains lit until control power supply voltage falls below 50 V
Ambient conditions	Area of use	Indoors (no corrosive gas, dust, etc.)
	Ambient temperature	IP00 enclosure: −10 to 50°C IP20 enclosure: −10 to 40°C
	Ambient humidity	95% RH or less (without condensation)
	Storage temperature	−20 to 60°C
	Altitude	Up to 1000 meters
	Shock	10 to 20 Hz: 9.8 m/s² 20 to 55 Hz: 5.9 m/s² (2E0028 to 2E0081, 4E0011 to 4E0077) 2.0 m/s² (2E0104 to 2E0248, 4E0096 to 4E0414)
Standards		UL508C, IEC/EN 61800-3, IEC/EN 61800-5-1, ISO/EN 13849-1 Cat.3 PLe, IEC/EN 61508 SIL3
Protection design		IP00 enclosure standard IP20/Nema1 with optional kit

[*1] Current derating is required. Select control modes in accordance with the drive capacity.
[*2] Speed control accuracy may vary slightly depending on installation conditions or motor used.
[*3] Overload protection may be triggered when operating with 150% of the rated output current if the output frequency is less than 6 Hz.
[*4] May be shorter due to load conditions and motor speed.
[*5] A separate momentary power loss ride-thru unit is required for the drives if the application needs to continue running during a momentary power loss up to 2 s.
[*6] Ground protection cannot be provided when the impedance of the ground fault path is too low or when the drive is powered up while a ground fault is present at the output.

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200 V class

Three-phase: CIMR-UC2E_		0028	0042	0054	0068	0081	0104	0130	0154	0192	0248
Input current at HD [1]	A	20	25	38	49	62	74	95	118	140	175
Input current at ND [1]	A	25	38	49	62	74	95	118	140	175	226
Rated input capacity at HD [2]	kVA	9	12	17	22	28	34	43	54	64	80
Rated input capacity at ND [2]	kVA	12	17	22	28	34	43	54	64	80	103
Rated output current at HD [3]	A	22	28	42	54	68	81	104	130	154	192
Rated output current at ND [3]	A	28	42	54	68	81	104	130	154	192	248
Overload tolerance	%	HD rating: 150% of rated output current for 60 s ND rating: 120% of rated output current for 60 s (Derating may be required for applications that start and stop frequently)									
Output voltage	V	0 to Mains supply voltage									
Carrier frequency [4]	Hz	4 KHz (user adjustable up to 10 KHz. Derating may be required)									
Max. output frequency	Hz	400 Hz [5]									
Rated input voltage and frequency		Three-phase 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)									
Harmonics current distortion, THDI [6]		< 5% (IEEE519 compliant)									
Input power factor [6]		0.98 min (during rated operation)									
Efficiency		> 96%									
Weight with IP00 protection	kg	21	33		36		63		115		181
Weight with IP20 protection	kg	22.5	35		38		65		118		185

In/Out characteristics / Power supply

[1] Assumes operation at the rated output current. Input current rating varies depending on the power supply transformer, input reactor, wiring connections and power supply impedance.
[2] Rated input capacity is calculated with a power line voltage of 240 V × 1.1.
[3] The rated output current of the drive output amps should be equal to or greater than the motor rated current.
[4] Carrier frequency is set to 4 KHz. Current derating is required in order to raise the carrier frequency.
[5] Adjustable by user.
[6] If one of the following specifications are needed, the maximum output voltage will be the equivalent to the input voltage × 0.87: Harmonic current distortion of 5% or less, Harmonic suppression guidelines compliance or Input power factor of 0.98 or more.

400 V class

Three-phase: CIMR-UC4E_		0011	0014	0021	0027	0034	0040	0052	0065	0077	0096	0124	0156	0180	0216	0240	0302	0361	0414
Input current at HD [1]	A	8.7	10	13	19	25	31	36	47	59	70	87	113	142	164	197	218	275	329
Input current at ND [1]	A	10	13	19	25	31	36	47	59	70	87	113	142	164	197	218	275	329	377
Rated input capacity at HD [2]	kVA	8	9	12	17	22	28	33	43	54	64	80	103	130	150	180	200	251	300
Rated input capacity at ND [2]	kVA	9	12	17	22	28	33	43	54	64	80	103	130	150	180	200	251	300	344
Rated output current at HD [3]	A	9.6	11	14	21	27	34	40	52	65	77	96	124	156	180	216	240	302	361
Rated output current at ND [3]	A	11	14	21	27	34	40	52	65	77	96	124	156	180	216	240	302	361	414
Overload tolerance	%	HD rating: 150% of rated output current for 60 s ND rating: 120% of rated output current for 60 s (Derating may be required for applications that start and stop frequently)																	
Output voltage	V	0 to Mains supply voltage																	
Carrier frequency [4]	Hz	4 KHz (user adjustable up to 10 KHz. Derating may be required)																	
Max. output frequency	Hz	400 Hz [5]																	
Rated input voltage and frequency		Three-phase 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)																	
Harmonics current distortion, THDI [6]		< 5% (IEEE519 compliant)																	
Input power factor [6]		0.98 min (during rated operation)																	
Efficiency		> 96%																	
Weight with IP00 protection	kg	21						33		36		63		115		181		267	
Weight with IP20 protection	kg	22.5						35		38		65		118		185		278	

In/Out characteristics / Power supply

[1] Assumes operation at the rated output current. Input current rating varies depending on the power supply transformer, input reactor, wiring connections and power supply impedance.
[2] Rated input capacity is calculated with a power line voltage of 480 V × 1.1.
[3] The rated output current of the drive output amps should be equal to or greater than the motor rated current.
[4] Carrier frequency is set to 4 KHz. Current derating is required in order to raise the carrier frequency.
[5] Adjustable by user.
[6] If one of the following specifications are needed, the maximum output voltage will be the equivalent to the input voltage × 0.87: Harmonic current distortion of 5% or less, Harmonic suppression guidelines compliance or Input power factor of 0.98 or more.
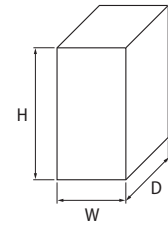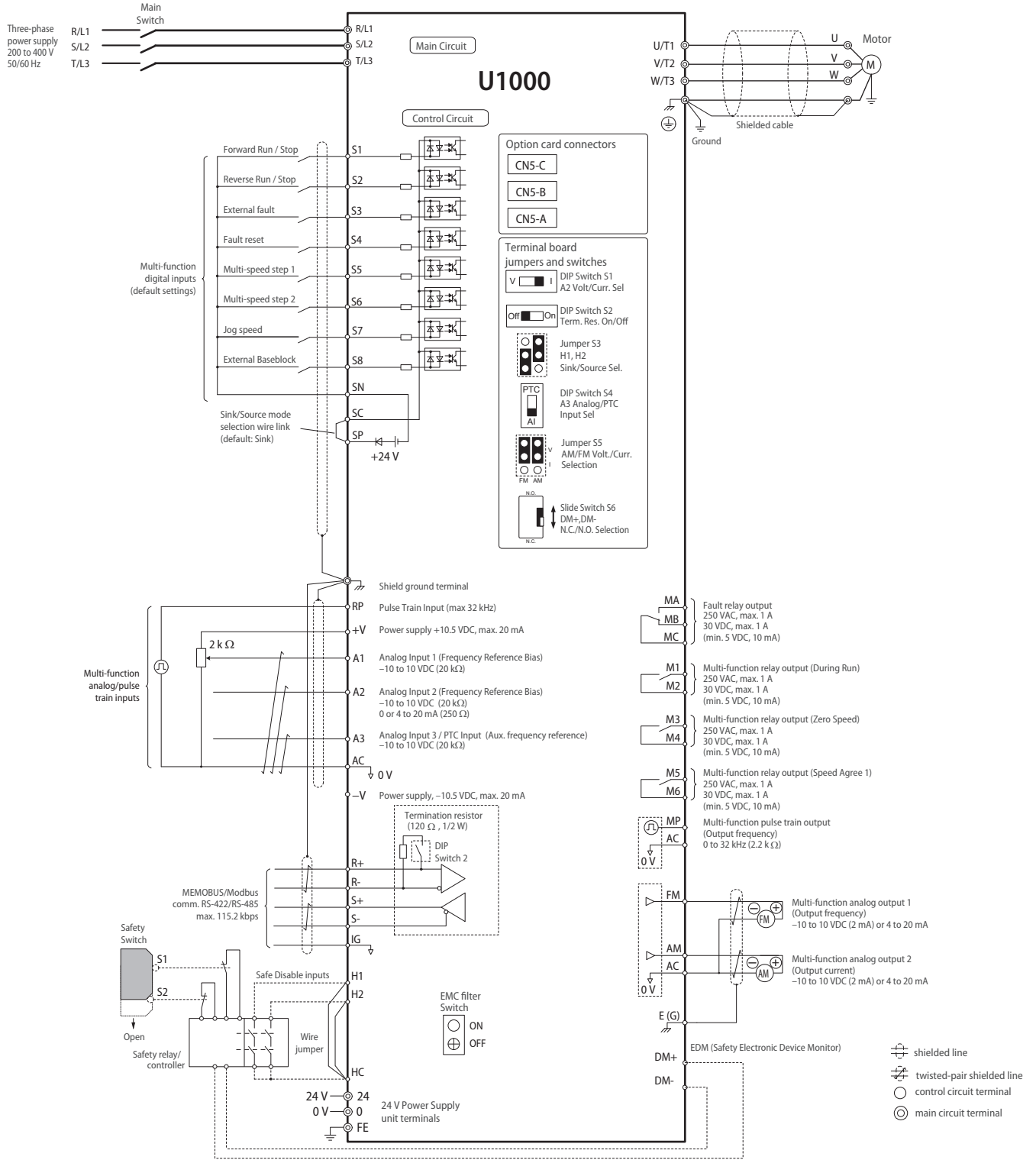
Variable Speed Drives

Dimensions

Voltage class	Protection class	U1000 model	IP20/Nema1 kit model	Dimensions in mm			
				H	W	D	Weight (kg)
200 V	IP00	CIMR-UC2E0028AAA	–	480	250	360	21
		CIMR-UC2E0042AAA		650	264	420	33
		CIMR-UC2E0054AAA					
		CIMR-UC2E0068AAA					36
		CIMR-UC2E0081AAA					
		CIMR-UC2E0104AAA		816		450	63
		CIMR-UC2E0130AAA					
		CIMR-UC2E0154AAA		990	415	403	115
		CIMR-UC2E0192AAA					
		CIMR-UC2E0248AAA		1,132	490	450	181
	IP20/Nema1[*1]	CIMR-UC2E0028AAA	EZZ022745A	524	250	360	22.5
		CIMR-UC2E0042AAA	EZZ022745B	705	264	420	35
		CIMR-UC2E0054AAA					
		CIMR-UC2E0068AAA					38
		CIMR-UC2E0081AAA					
		CIMR-UC2E0104AAA	EZZ022745C	885		450	65
		CIMR-UC2E0130AAA					
		CIMR-UC2E0154AAA	EZZ022745D	1,107	415	403	118
		CIMR-UC2E0192AAA					
		CIMR-UC2E0248AAA	EZZ022745E	1,320	490	450	185
400 V	IP00	CIMR-UC4E0011AAA	-	480	250	360	21
		CIMR-UC4E0014AAA					
		CIMR-UC4E0021AAA					
		CIMR-UC4E0027AAA					
		CIMR-UC4E0034AAA					
		CIMR-UC4E0040AAA		650	264	420	33
		CIMR-UC4E0052AAA					
		CIMR-UC4E0065AAA					36
		CIMR-UC4E0077AAA					
		CIMR-UC4E0096AAA		816		450	63
		CIMR-UC4E0124AAA					
		CIMR-UC4E0156AAA		990	415	403	115
		CIMR-UC4E0180AAA					
		CIMR-UC4E0216AAA		1,132	490	450	181
		CIMR-UC4E0240AAA					
		CIMR-UC4E0302AAA			695		267
		CIMR-UC4E0361AAA					
		CIMR-UC4E0414AAA					
	IP20/Nema1[*1]	CIMR-UC4E0011AAA	EZZ022745A	524	250	360	22.5
		CIMR-UC4E0014AAA					
		CIMR-UC4E0021AAA					
		CIMR-UC4E0027AAA					
		CIMR-UC4E0034AAA					
		CIMR-UC4E0040AAA	EZZ022745B	705	264	420	35
		CIMR-UC4E0052AAA					
		CIMR-UC4E0065AAA					38
		CIMR-UC4E0077AAA					
		CIMR-UC4E0096AAA	EZZ022745C	885		450	65
		CIMR-UC4E0124AAA					
		CIMR-UC4E0156AAA	EZZ022745D	1,107	415	403	118
		CIMR-UC4E0180AAA					
		CIMR-UC4E0216AAA	EZZ022745E	1,320	490	450	185
		CIMR-UC4E0240AAA					
		CIMR-UC4E0302AAA	EZZ022745F	1,460	695		278
		CIMR-UC4E0361AAA					
		CIMR-UC4E0414AAA					

*1 Dimensions and weight when the IP20/Nema1 kit is installed.

Installation

Three-phase power supply 200 to 400 V 50/60 Hz

R/L1
S/L2
T/L3

Main Switch

R/L1
S/L2
T/L3

Main Circuit

U1000

Control Circuit

U/T1
V/T2
W/T3

U
V
W

Motor

Shielded cable

Ground

Multi-function digital inputs (default settings)

Forward Run / Stop — S1
Reverse Run / Stop — S2
External fault — S3
Fault reset — S4
Multi-speed step 1 — S5
Multi-speed step 2 — S6
Jog speed — S7
External Baseblock — S8
SN
SC
SP

Sink/Source mode selection wire link (default: Sink)

+24 V

Option card connectors

CN5-C
CN5-B
CN5-A

Terminal board jumpers and switches

DIP Switch S1 A2 Volt/Curr. Sel — V / I
DIP Switch S2 Term. Res. On/Off — Off / On
Jumper S3 H1, H2 Sink/Source Sel.
DIP Switch S4 A3 Analog/PTC Input Sel — PTC / AI
Jumper S5 AM/FM Volt./Curr. Selection — FM AM
Slide Switch S6 DM+,DM- N.C./N.O. Selection — N.O. / N.C.

Shield ground terminal

RP — Pulse Train Input (max 32 kHz)
+V — Power supply +10.5 VDC, max. 20 mA

Multi-function analog/pulse train inputs

2 kΩ

A1 — Analog Input 1 (Frequency Reference Bias) −10 to 10 VDC (20 kΩ)
A2 — Analog Input 2 (Frequency Reference Bias) −10 to 10 VDC (20 kΩ) 0 or 4 to 20 mA (250 Ω)
A3 — Analog Input 3 / PTC Input (Aux. frequency reference) −10 to 10 VDC (20 kΩ)
AC — 0 V
−V — Power supply, −10.5 VDC, max. 20 mA

Termination resistor (120 Ω , 1/2 W)

DIP Switch 2

MEMOBUS/Modbus comm. RS-422/RS-485 max. 115.2 kbps

R+
R-
S+
S-
IG

Safety Switch

S1
S2

Open

Safety relay/ controller

Safe Disable inputs

H1
H2

Wire jumper

HC

EMC filter Switch

ON
OFF

24 V — 24
0 V — 0
— FE

24 V Power Supply unit terminals

MA
MB
MC
— Fault relay output 250 VAC, max. 1 A 30 VDC, max. 1 A (min. 5 VDC, 10 mA)

M1
M2
— Multi-function relay output (During Run) 250 VAC, max. 1 A 30 VDC, max. 1 A (min. 5 VDC, 10 mA)

M3
M4
— Multi-function relay output (Zero Speed) 250 VAC, max. 1 A 30 VDC, max. 1 A (min. 5 VDC, 10 mA)

M5
M6
— Multi-function relay output (Speed Agree 1) 250 VAC, max. 1 A 30 VDC, max. 1 A (min. 5 VDC, 10 mA)

MP
AC
0 V
— Multi-function pulse train output (Output frequency) 0 to 32 kHz (2.2 k Ω)

FM
— Multi-function analog output 1 (Output frequency) −10 to 10 VDC (2 mA) or 4 to 20 mA

AM
AC
0 V
— Multi-function analog output 2 (Output current) −10 to 10 VDC (2 mA) or 4 to 20 mA

E (G)

DM+
DM-
— EDM (Safety Electronic Device Monitor)

shielded line
twisted-pair shielded line
control circuit terminal
main circuit terminal

Main circuit

Terminal	Name	Function (signal level)
R/L1, S/L2, T/L3	Main circuit power supply input	Used to connect line power to the drive
U/T1, V/T2, W/T3	Drive output	Used to connect the motor
PE	Safety earth	Protected earth

Control circuit

Type	No.	Signal name	Function (default)	Signal level
Digital input	S1	Multi-function input 1	Closed: Forward run/Open: Stop	Photocoupler 24 VDC, 8 mA Set the wire jumper between SC and SN or SC and SP for selection of sinking/sourcing mode and power supply
	S2	Multi-function input 2	Closed: Reverse run/Open: Stop	
	S3	Multi-function input 3	External fault, N.O.	
	S4	Multi-function input 4	Fault reset	
	S5	Multi-function input 5	Multi-step speed reference 1	
	S6	Multi-function input 6	Multi-step speed reference 2	
	S7	Multi-function input 7	Jog reference	
	S8	Multi-function input 8	Baseblock command, N.O.	
	SC	Multi-function input common		
	SP	Digital input power supply +24 VDC		24 VDC power supply for digital inputs, 150 mA max. (only when not using digital input option DI-A3)[1]
	SN	Digital input power supply 0 V		
Analog input	RP	Multi-function pulse train input (Frequency reference)		Input frequency range: 0 to 32 KHz Signal Duty cycle: 30 to 70% High level: 3.5 to 13.2 VDC, Low level: 0.0 to 0.8 VDC Input impedance: 3 kΩ
	+V	Power supply for analog inputs		10.5 VDC (max. allowable current 20 mA)
	–V			−10.5 VDC (max. allowable current 20 mA)
	A1	Multi-function analog input 1 (Frequency reference bias)		−10 to 10 VDC, 0 to 10 VDC (input impedance: 20 kΩ)
	A2	Multi-function analog input 2 (Frequency reference bias)		−10 to 10 VDC, 0 to 10 VDC (input impedance: 20 kΩ) 4 to 20 mA, 0 to 20 mA (input impedance: 250 Ω) Voltage or current must be selected by DIP switch S1 and H3-09
	A3	Multi-function analog input 3 (auxiliary frequency reference)/PTC input		−10 to 10 VDC, 0 to 10 VDC (input impedance: 20 kΩ) Use DIP switch S4 on the terminal board to select between analog and PTC input
	AC	Frequency reference common		0 V
	E (G)	Ground for shielded lines and option cards		
Safety input	H1	Safe disable input 1		24 VDC, 8 mA One or both open: Output disabled Both closed: Normal operation Internal impedance: 3.3 kΩ, Off time of at least 1 ms Disconnect the wire jumpers shorting terminals H1, H2 and HC to use the Safe Disable inputs. Set the S3 jumper to select between sinking mode, sourcing mode and the power supply
	H2	Safe disable input 2		
	HC	Safe disable function common		
Digital output	M1	Multi-function output 1 (During run)		30 VDC, 10 mA to 1 A 250 VAC, 10 mA to 1 A Minimum load: 5 VDC, 10 mA
	M2	Multi-function output 2 (During run)		
	M3	Multi-function output 3 (Zero speed)		
	M4	Multi-function output 4 (Zero speed)		
	M5	Multi-function output 5 (Speed agree 1)		
	M6	Multi-function output 6 (Speed agree 1)		
Fault relay output	MA	N.O. output (Fault)		
	MB	N.C. output (Fault)		
	MC	Fault output common		
Monitor output	MP	Pulse train output (Output frequency)		32 KHz max.
	FM	Analog monitor output 1 (Output frequency)		−10 to 10 VDC, 0 to 10 VDC or 4 to 20 mA Use jumper S5 on the terminal board to select between the voltage or current output signals. Resolution: 1/1000
	AM	Analog monitor output 2 (Output current)		
	AC	Monitor common		0 V
Safety monitor output	DM+	Safety monitor output		Output status of Safe Disable function. Closed when both Safe Disable channels are closed. Up to 48 VDC, 50 mA Slide the switch S6 to select N.C. or N.O. as the state of the DM+ and DM- terminals for EDM output.
	DM–			
RS-485/422	R+	Communications input +	For MEMOBUS/Modbus communication Use a RS-485 or RS-422 cable to connect the drive.	RS-485/422 MEMOBUS/Modbus communication protocol 115.2 kbps max.
	R–	Communications input –		
	S+	Communications output +		
	S–	Communications output –		
	IG	Shield ground		0 V

[1] Do not jumper or short terminals SP and SN. Failure to comply will damage the drive.

OMRON

Drive heat loss

Three-phase 200 V class

Drive model	Heavy Duty				Normal Duty			
	Rated Amps (A)	Interior Loss (W)	Exterior Loss (W)	Total Loss (W)	Rated Amps (A)	Interior Loss (W)	Exterior Loss (W)	Total Loss (W)
CIMR-UC2E0028AAA	22	91	543	634	28	103	659	762
CIMR-UC2E0042AAA	28	138	586	724	42	168	854	1,022
CIMR-UC2E0054AAA	42	168	808	976	54	196	1,037	1,233
CIMR-UC2E0068AAA	54	190	1,017	1,207	68	226	1,295	1,521
CIMR-UC2E0081AAA	68	208	1,181	1,389	81	238	1,420	1,658
CIMR-UC2E0104AAA	81	234	1,313	1,547	104	282	1,696	1,978
CIMR-UC2E0130AAA	104	280	1,673	1,953	130	341	2,157	2,498
CIMR-UC2E0154AAA	130	319	2,037	2,356	154	366	2,441	2,807
CIMR-UC2E0192AAA	154	365	2,400	2,765	192	447	3,064	3,511
CIMR-UC2E0248AAA	192	460	2,815	3,275	248	578	3,785	4,363

Three-phase 400 V class

Drive model	Heavy Duty				Normal Duty			
	Rated Amps (A)	Interior Loss (W)	Exterior Loss (W)	Total Loss (W)	Rated Amps (A)	Interior Loss (W)	Exterior Loss (W)	Total Loss (W)
CIMR-UC4E0011AAA	10	76	415	491	11	80	452	532
CIMR-UC4E0014AAA	11	70	372	442	14	79	459	538
CIMR-UC4E0021AAA	14	80	438	518	21	105	640	745
CIMR-UC4E0027AAA	21	93	549	642	27	106	674	780
CIMR-UC4E0034AAA	27	107	658	765	34	124	798	922
CIMR-UC4E0040AAA	34	150	694	844	40	174	877	1,051
CIMR-UC4E0052AAA	40	178	856	1,034	52	209	1,109	1,318
CIMR-UC4E0065AAA	52	204	1,086	1,290	65	240	1,370	1,610
CIMR-UC4E0077AAA	65	220	1,238	1,458	77	251	1,479	1,730
CIMR-UC4E0096AAA	77	247	1,373	1,620	96	290	1,715	2,005
CIMR-UC4E0124AAA	96	290	1,693	1,983	124	362	2,256	2,618
CIMR-UC4E0156AAA	124	343	2,242	2,585	156	421	2,856	3,277
CIMR-UC4E0180AAA	156	421	2,833	3,254	180	482	3,316	3,798
CIMR-UC4E0216AAA	180	503	3,055	3,538	316	588	3,720	4,308
CIMR-UC4E0240AAA	216	551	3,498	4,049	240	600	3,897	4,497
CIMR-UC4E0302AAA	240	689	3,867	4,556	302	857	5,202	6,059
CIMR-UC4E0361AAA	302	735	4,384	5,119	361	863	5,434	6,297
CIMR-UC4E0414AAA	361	902	5,563	6,465	414	1,012	6,444	7,456

Variable Speed Drives

Ordering information
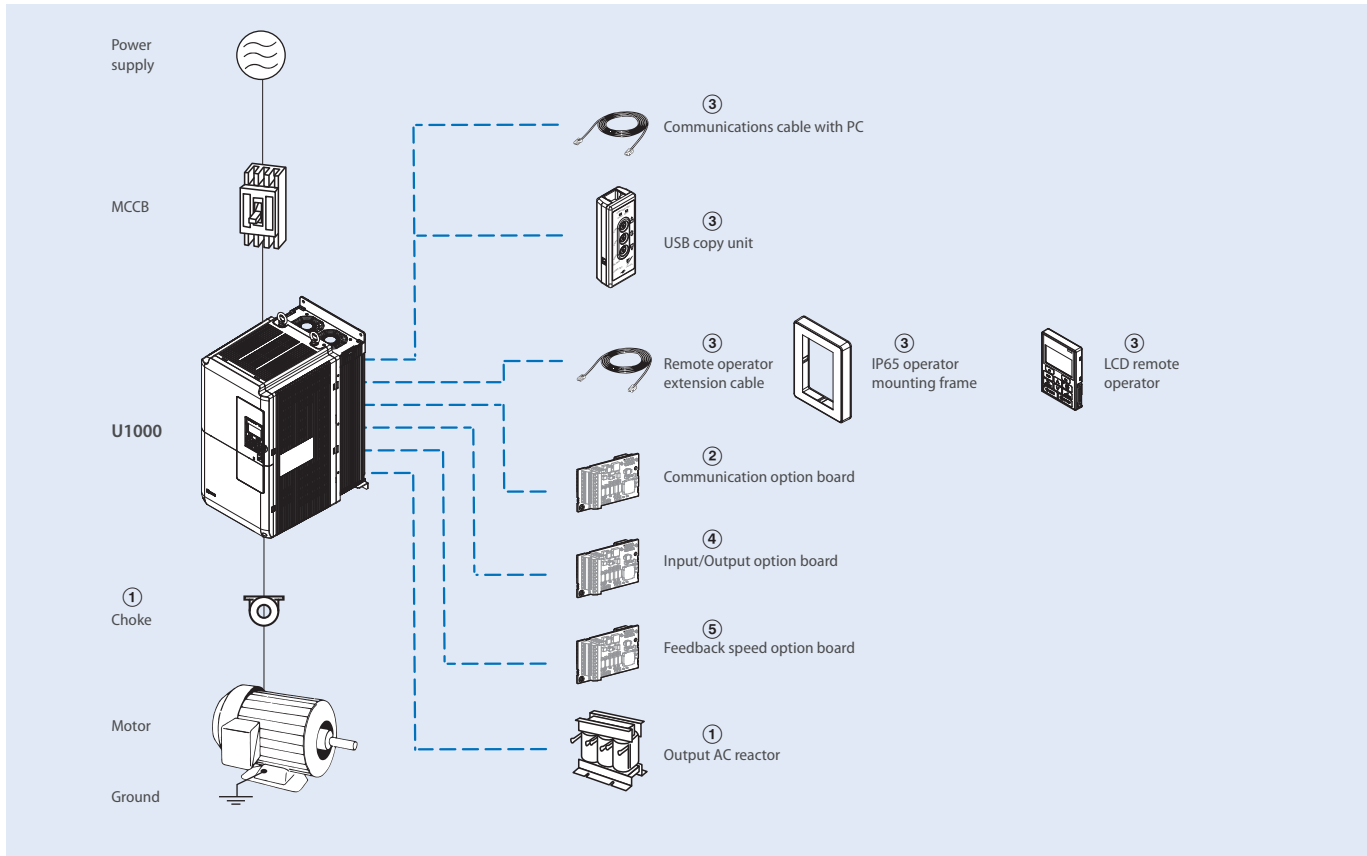
Note: U1000 includes EMC filter, input AC reactor, regenerative converter and frequency drive.

U1000 drive

Specifications					Order code	
Voltage	Heavy duty		Normal duty		U1000	IP20/Nema1 kit
	Input current	Rated output current	Input current	Rated output current		
200 V	20 A	22 A	25 A	28 A	CIMR-UC2E0028AAA	EZZ022745A
	25 A	28 A	38 A	42 A	CIMR-UC2E0042AAA	EZZ022745B
	38 A	42 A	49 A	54 A	CIMR-UC2E0054AAA	
	49 A	54 A	62 A	68 A	CIMR-UC2E0068AAA	
	62 A	68 A	74 A	81 A	CIMR-UC2E0081AAA	
	74 A	81 A	95 A	104 A	CIMR-UC2E0104AAA	EZZ022745C
	95 A	104 A	118 A	130 A	CIMR-UC2E0130AAA	
	118 A	130 A	140 A	154 A	CIMR-UC2E0154AAA	EZZ022745D
	140 A	154 A	175 A	192 A	CIMR-UC2E0192AAA	
	175 A	192 A	226 A	248 A	CIMR-UC2E0248AAA	EZZ022745E
400 V	8.7 A	9.6 A	10 A	11 A	CIMR-UC4E0011AAA	EZZ022745A
	10 A	11 A	13 A	14 A	CIMR-UC4E0014AAA	
	13 A	14 A	19 A	21 A	CIMR-UC4E0021AAA	
	19 A	21 A	25 A	27 A	CIMR-UC4E0027AAA	
	25 A	27 A	31 A	34 A	CIMR-UC4E0034AAA	
	31 A	34 A	36 A	40 A	CIMR-UC4E0040AAA	EZZ022745B
	36 A	40 A	47 A	52 A	CIMR-UC4E0052AAA	
	47 A	52 A	59 A	65 A	CIMR-UC4E0065AAA	
	59 A	65 A	70 A	77 A	CIMR-UC4E0077AAA	
	70 A	77 A	87 A	96 A	CIMR-UC4E0096AAA	EZZ022745C
	87 A	96 A	113 A	124 A	CIMR-UC4E0124AAA	
	113 A	124 A	142 A	156 A	CIMR-UC4E0156AAA	EZZ022745D
	142 A	156 A	164 A	180 A	CIMR-UC4E0180AAA	
	164 A	180 A	197 A	216 A	CIMR-UC4E0216AAA	EZZ022745E
	197 A	216 A	218 A	240 A	CIMR-UC4E0240AAA	
	218 A	240 A	275 A	302 A	CIMR-UC4E0302AAA	EZZ022745F
	275 A	302 A	329 A	361 A	CIMR-UC4E0361AAA	
	329 A	361 A	377 A	414 A	CIMR-UC4E0414AAA	

Note: The U1000 model has an IP00 protection class. For the IP20 protection class, install the IP20/Nema1 kit.

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① **Output AC reactor**

3-phase 200 VAC		3-phase 400 VAC	
Model	Output AC reactor	Model	Output AC reactor
CIMR-UC2E0028AAA	AX-RAO01150220-DE	CIMR-UC4E0011AAA	AX-RAO04600110-DE
CIMR-UC2E0042AAA	AX-RAO00950320-DE	CIMR-UC4E0014AAA	
CIMR-UC2E0054AAA	AX-RAO00630430-DE	CIMR-UC4E0021AAA	AX-RAO03600160-DE
CIMR-UC2E0068AAA	AX-RAO00490640-DE	CIMR-UC4E0027AAA	AX-RAO02500220-DE
CIMR-UC2E0081AAA	AX-RAO00390800-DE	CIMR-UC4E0034AAA	AX-RAO02000320-DE
CIMR-UC2E0104AAA	AX-RAO00330950-DE	CIMR-UC4E0040AAA	AX-RAO01650400-DE
CIMR-UC2E0130AAA	AX-RAO00251210-DE	CIMR-UC4E0052AAA	
CIMR-UC2E0154AAA	AX-RAO00191450-DE	CIMR-UC4E0065AAA	AX-RAO01030580-DE
CIMR-UC2E0192AAA	AX-RAO00161820-DE	CIMR-UC4E0077AAA	AX-RAO00800750-DE
CIMR-UC2E0248AAA	AX-RAO00132200-DE	CIMR-UC4E0096AAA	AX-RAO00680900-DE
		CIMR-UC4E0124AAA	AX-RAO00531100-DE
		CIMR-UC4E0156AAA	AX-RAO00401490-DE
		CIMR-UC4E0180AAA	AX-RAO00331760-DE
		CIMR-UC4E0216AAA	AX-RAO00262170-DE
		CIMR-UC4E0240AAA	
		CIMR-UC4E0302AAA	AX-RAO00212600-DE
		CIMR-UC4E0361AAA	–
		CIMR-UC4E0414AAA	

Note: This table corresponds with HD rating. When ND is used, please choose the reactor for the next size drive.

① **Choke**

Diameter	Description	Order code
21	For 2.2 kW motors or below	AX-FER2102-RE
25	For 15 kW motors or below	AX-FER2515-RE
50	For 45 kW motors or below	AX-FER5045-RE
60	For 55 kW motors or above	AX-FER6055-RE

② **Communication option board**

Description	Function	Order code
CANopen	Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through CANopen communication with the host controller.	SI-S3
DeviceNet	Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through DeviceNet communication with the host controller.	SI-N3
EtherCAT	Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through EtherCAT communication with the host controller.	SI-ES3
EtherNet/IP	Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through EtherNet/IP communication with the host controller.	SI-EN3
MECHATROLINK-II	Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through MECHATROLINK-II communication with the host controller.	SI-T3
Modbus TCP/IP	Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through Modbus TCP/IP communication with the host controller.	SI-EM3
POWERLINK	Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through POWERLINK communication with the host controller.	SI-EL3
PROFIBUS-DP	Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through PROFIBUS-DP communication with the host controller.	SI-P3
PROFINET	Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through PROFINET communication with the host controller.	SI-EP3

③ **Accessories**

Type	Description	Function	Order code
Digital operator	Remote operator extension cable	3 meters cable for connecting remote operator	3G3AX-CAJOP300-EE
	IP65 operator mounting frame	Provides a simple way of installing the LCD remote operator of the drive on a cabinet wall or door	JVOP-V11001
	LCD remote operator	LCD display operator with language support	JVOP-180
	LED operator	5-digits LED operator with copy function	JVOP-182
Accessories	USB copy unit	USB converter for PC tool usage and copy unit for easy parameter setup duplication and backup in one	JVOP-181

④ **Input/Output option board**

Description	Function	Order code
Analog input	Allows high precision, high resolution analog reference input. Input channels: 3 Voltage input: -10 to 10 VDC (20 kΩ), 13-bit signed Current input: 4 to 20 mA or 0 to 20 mA (250 Ω), 12-bit	AI-A3
Analog monitor	Provides extra multi-function analog output terminals. Output channels: 2 Output voltage: -10 to 10 VDC, 11-bit (signed)	AO-A3
Digital input	Used to set the frequency reference by digital inputs. Input channels: 18 (including SET and SIGN signals) Input signal type: BCD 16-bit (4 digit), 12-bit (3 digit), 8-bit (2 digit) Input signal: 24 VDC, 8 mA	DI-A3
Digital output	Provides extra insulated multi-function digital outputs. Photocoupler relays: 6 (48 V, up to 50 mA) Contact relays: 2 (250 VAC/30 VDC, up to 1 A)	DO-A3

⑤ **Feedback speed option board**

Description	Function	Order code
Motor PG feedback open collector interface	For speed feedback input by connecting a motor encoder. Input: 3 track (one or two tracks), for HTL encoder connection, 50 KHz max. Output: 3 track, open collector. Encoder power supply: 12 V, 200 mA max.	PG-B3
Motor PG feedback line driver interface	For speed feedback input by connecting a motor encoder. Input: 3 track (one or two tracks), line driver, 300 KHz max. Output: 3 track, line driver. Encoder power supply: 5 or 12 V, 200 mA max.	PG-X3
Motor feedback resolver interface	For motor speed feedback by connecting a resolver (TS2640N321E64 by Tamagawa Seiki Co., LTD) Input voltage: 7 VAC rms, 10 KHz Transformation ratio: 0.5 ±5% Maximum input current: 100 mA rms	PG-RT3

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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