

YASKAWA

LOW-VOLTAGE INVERTER DRIVE FOR SYSTEMS

A1000 HHP Modular Drive

480 V, 300 kW to 1350 kW

690 V, 350 kW to 1750 kW

Certified for
ISO9001 and
ISO14001



JQA-2800

JQA-EM0498



YASKAWA Modular Cabinet Solution

YASKAWA's inverter drives for system applications are industrial variable speed drives. For enhanced performance and functions, the priority throughout the development stage has been given on high quality and high reliability. The A1000-HHP series is the culmination of YASKAWA's many decades of technological expertise.

This is the most advanced inverter drive that can meet the wide range of requirements that include compactness, reduced maintenance, network compliance, user-friendliness and flexibility.

To update existing systems as well as to efficiently install new systems, YASKAWA offers the ultimate variable speed system with the A1000-HHP series of inverter drives with a wide range of capacities from small to large.

Features

The A1000-HHP series delivers high performance and advanced control functions. Power input prepared for 12 pulse systems allows reduction of harmonics within the limits of IEE519. Integrated DC Reactor for input harmonic reduction. Extractable Rectifier and Inverter modules allow easy extraction and maintenance.

The digital operator provided on the front of each unit displays the error type, making it easy to locate errors.

The terminal-free connector employed for the input and output main circuits eliminates the need for wiring.

Detachable terminal block allows replacement of any unit without the need to remove the external I/O wiring.

Easy replacement in the event of a failure.



Flexibility in Unit Arrangements

The optimal unit arrangement for the system can be achieved, as units with different capacities can be installed within the same panel.



HHP Modular Drives

HHP Modular Drives are regenerative type and non-regenerative type. Ordering code for both regenerative and non-regenerative types depend on Type of Configuration, Voltage Class and Current Rating.

Stand Alone System (Non-Regenerative System)

This configuration is a combination of both rectifiers and inverters. All the inverter outputs are connected to a single motor via output choke. Ordering Coder represents the Inverter current rating. First letter of ordering code is 'A'.

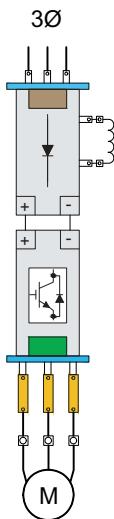
Ordering Code: **CIMR - A D 4 H 2250 A**

Rectifier Modules (Non-Regenerative System)

These are normal non-regenerative rectifier modules of 12 Pulse or 6 Pulse configuration. Ordering Code represents, rectifier current ratings. First letter of ordering code is 'N'.

Ordering Code: **CIMR - N D 4 H 2295 A**

Stand-Alone System



Inverter Modules

These are normal inverter modules. Ordering Code represents inverter current ratings. First letter of ordering code is 'I'. This inverter module is common for both regenerative system and non regenerative system.

Ordering Code: **CIMR - I D 4 H 2250 A**

Rectifier Modules (Regenerative system)

These are regenerative rectifiers modules (without Pre-Charge Circuit). Pre-Charge circuit should be ordered separately based on the rectifier rating. Ordering code represents rectifier current rating. First letter of ordering code is 'D'.

Ordering Code: **CIMR - D D 4 H 2250 A**

Stand-Alone System

CIMR - A D 4 H 2250 A

Code	Description
CIMR	Drive
A	System Configuration: Stand Alone System – Comprises of rectifiers and inverters. All inverters are connected to single motor via output choke.
D	Country Code: India
4	Voltage Class: 4 – 480V 6 – 575V/690V
H	HHP Series
2250	Inverter Current Rating (ND):
	466A 900A 1350A 1800A 2250A
A	Customized Specification: A – 6 Pulse Rectifier B – 12 Pulse Rectifier

Inverter*

CIMR - I D 4 H 2250 A

Code	Description
CIMR	Drive
I	System Configuration: Non-Regenerative Inverter – Inverter modules alone
D	Country Code: India
4	Voltage Class: 4 – 480V 6 – 575V/690V
H	HHP Series
2250	Inverter Current Rating (ND):
	466A 900A 1350A 1800A 2250A
A	Revision Code

* This inverter is common for both Regenerative System & Non-Regenerative System

Non-Regenerative Rectifier

CIMR - N D 4 H 2295 A

Code	Description
CIMR	Drive
N	System Configuration: Non-Regenerative Rectifier – Rectifier modules alone
D	Country Code: India
4	Voltage Class: 4 – 480V 6 – 575V/690V
H	HHP Series
2295	Rectifier Current Rating (ND):
	Rectifier Output Current (A) 1169A 1992A 2295A
A	Customized Specification: A – 6 Pulse Rectifier B – 12 Pulse Rectifier

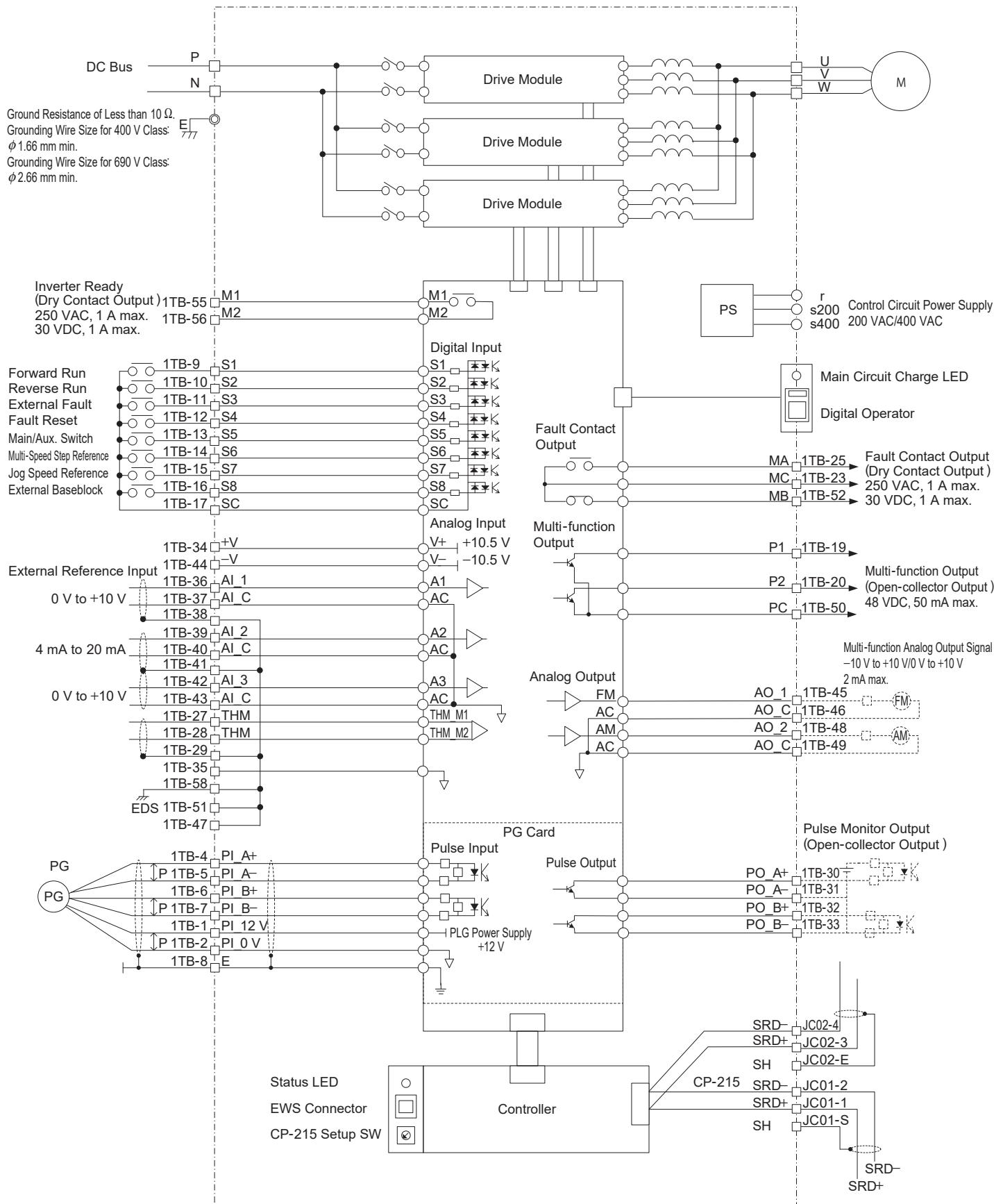
Regenerative Rectifier

CIMR - D D 4 H 2250 A

Code	Description
CIMR	Drive
D	System Configuration: Regenerative Rectifier* ¹ – Rectifier modules alone
D	Country Code: India
4	Voltage Class: 4 – 480V 6 – 575V/690V
H	HHP Series
2250	Rectifier Current Rating (ND):
	466A 900A 1350A 1800A 2250A
A	Revision Code

*¹: Pre-charge module should be ordered separately

Inverter Connections



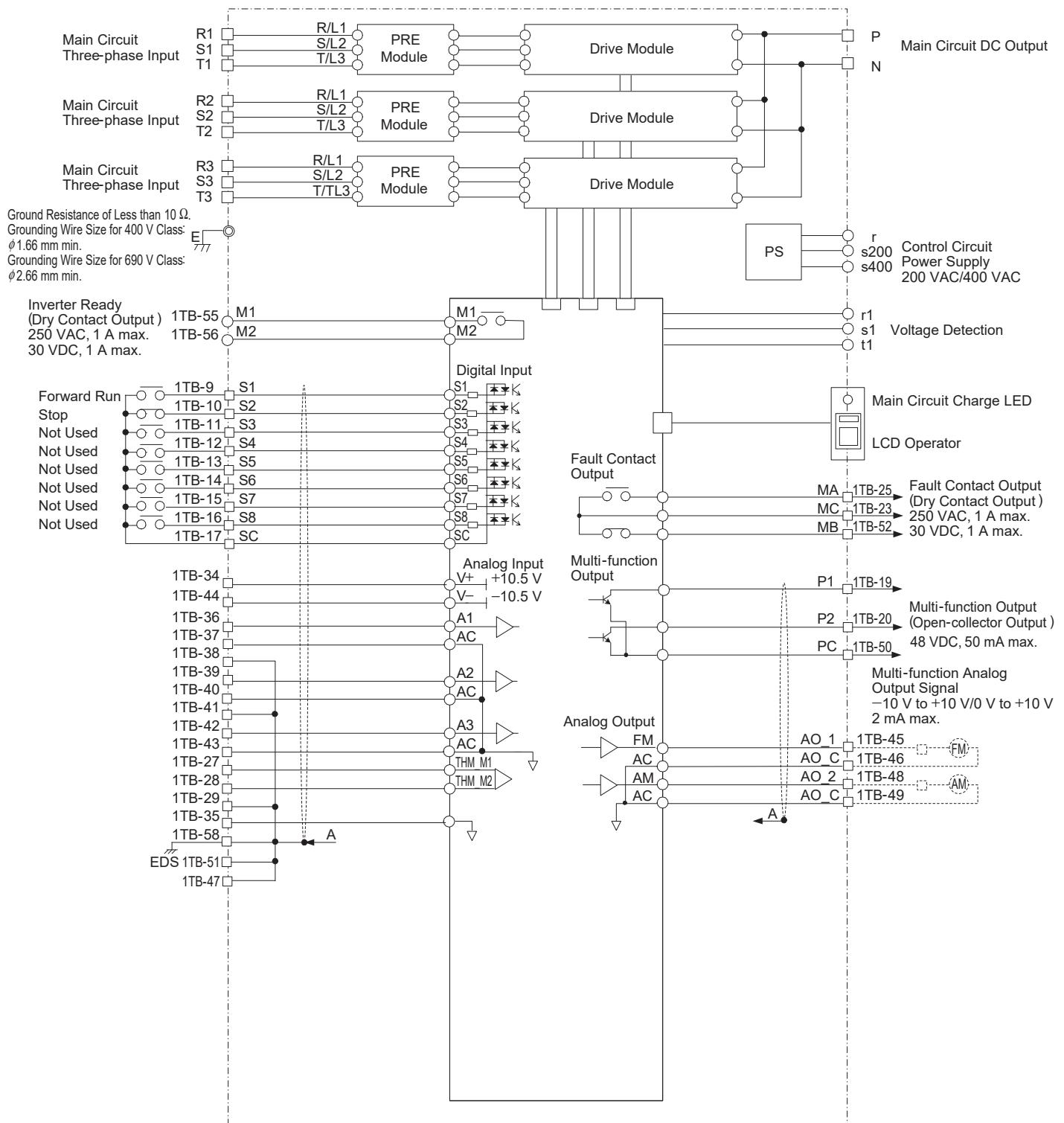
Terminal Functions

Terminal Name	Signal Name
Main Circuit	P, N
Terminal	U, V, W

Control Circuit Terminals

Terminal Block Name	Terminal No.	Signal Name	Function	Input/Output	Signal Level
1TB	1	PI 12 V	PLG power supply 12 V	Output	PLG power supply output (200 mA max.)
	2	PI 0 V	PLG power supply 0 V	Output	
	3	—			
	4	PI A+	Pulse Input A+	Input	
	5	PI A-	Pulse Input A-	Input	12-V photocoupler input
	6	PI B+	Pulse Input B+	Input	
	7	PI B-	Pulse Input B-	Input	
	8	E	PI and PO cable shield sheath	—	
	9	S1	Sequence input (forward run)	Input	
	10	S2	Sequence input (reverse run)	Input	
	11	S3	Sequence input (external fault)	Input	
	12	S4	Sequence input (fault reset)	Input	
	13	S5	Sequence input (main/aux. switch reference)	Input	24 VDC, 8 mA Photocoupler input
	14	S6	Sequence input (multi-speed step reference)	Input	
	15	S7	Sequence input (jog speed reference)	Input	
	16	S8	Sequence input (external baseblock)	Input	
	17	SC	Sequence input common	Input	
	18	—			
	19	P1	Multi-function output	Output	48 VDC, 50 mA Open-collector output
	20	P2	Multi-function output	Output	
	21	—			
	22	—			
	23	MC	Fault contact output common	Output	Dry contact 250 VAC, 10 mA to 1 A 30 VDC, 10 mA to 1 A
	24	—			
	25	MA	Fault contact output (NO contact)	Output	
	26	—			
	27	THM+	Thermistor input	Input	
	28	THM-			
	29	EDS	Shield Sheath	—	
	30	PO A+	Pulse Monitor A+	Output	12-V complementary output
	31	PO A-	Pulse Monitor A-	Output	
	32	PO B+	Pulse Monitor B+	Output	
	33	PO B-	Pulse Monitor B-	Output	
	34	+V	Analog power supply	Output	
	35	SG		—	
	36	AI 1	Analog input 1 (reference input)	Input	-10 V to +10 V/0 V to +10 V
	37	AI C	Analog input common	Input	
	38	EDS	Shield Sheath	—	
	39	AI 2	Analog input 2 (reference input)	Input	4 mA to 20 mA /0 V to 10 V
	40	AI C	Analog input common	Input	
	41	EDS	Shield Sheath	—	
	42	AI 3	Analog input 3 (reference input)	Input	-10 V to +10 V/0 V to +10 V
	43	AI C	Analog input common	Input	
	44	-V	Analog power supply	Output	-10.5 V (20 mA)
	45	AO 1	Multi-function analog monitor 1	Output	-10 V to +10 V/0 V to +10 V
	46	AO C	Analog monitor common	Output	
	47	EDS	Shield Sheath	—	
	48	AO 2	Multi-function analog monitor 2	Output	-10 V to +10 V/0 V to +10 V
	49	AO C	Analog monitor common	Output	
	50	PC	Multi-function output common	Output	2 mA max.
	51	EDS	Shield Sheath	—	
	52	MB	Fault contact output (NC contact)	Output	
	53	—			
	54	—			
	55	M1	Inverter ready (NO contact)	Output	Dry contact 250 VAC, 10 mA to 1 A 30 VDC, 10 mA to 1 A
	56	M2		Output	
	57	—			
	58	EDS	Shield Sheath	—	

Converter Connections



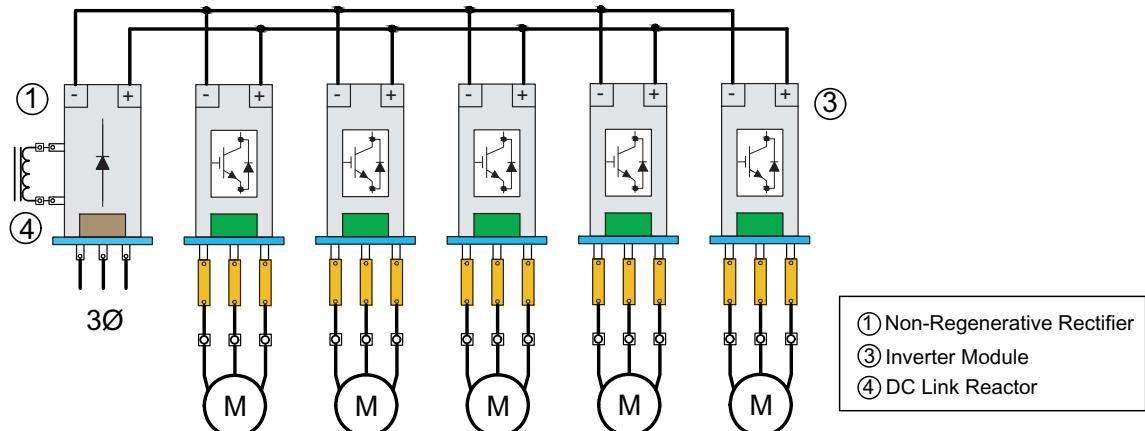
Terminal Functions

Terminal Name		Signal Name	Signal Name
Main Circuit Input Terminal	R	Main circuit phase-R input	Main circuit three-phase input
	S	Main circuit phase-S input	
	T	Main circuit phase-T input	
Main Circuit Output Terminal	P	Main circuit phase-P output	Main circuit DC output
	N	Main circuit phase-N output	

Control Circuit Terminals

Terminal Block Name	Terminal No.	Signal Name	Function	Input/Output	Signal Level
1TB	1	—			
	2	—			
	3	—			
	4	—			
	5	—			
	6	—			
	7	—			
	8	—			
	9	S1	Sequence input (forward run)	Input	24 VDC, 8 mA Photocoupler input
	10	S2	Sequence input (stop)	Input	
	11	S3	Not used.	Input	
	12	S4	Not used.	Input	
	13	S5	Not used.	Input	
	14	S6	Not used.	Input	
	15	S7	Not used.	Input	
	16	S8	Not used.	Input	
	17	SC		Input	
	18	—			
	19	P1	Multi-function output	Output	48 VDC, 50 mA Open-collector output
	20	P2	Multi-function output	Output	
	21	—			
	22	—			
	23	MC	Fault contact output common	Output	Dry contact 250 VAC, 1 A max. 30 VDC, 1 A max.
	24	—	—	—	
	25	MA	Fault contact output (NO contact)	Output	
	26	—			
	27	—			
	28	—			
	29	EDS	Shield Sheath	—	
	30	—			
	31	—			
	32	—			
	33	—			
	34	—			
	35	—			
	36	—			
	37	—			
	38	EDS	Shield Sheath	—	
	39	—			
	40	—			
	41	EDS	Shield Sheath	—	
	42	—			
	43	—			
	44	—			
	45	AO 1	Multi-function analog monitor 1	Output	-10 V to +10 V/0 V to +10 V 2 mA max.
	46	AO C	Analog monitor common	Output	
	47	EDS	Shield Sheath	—	
	48	AO 2	Multi-function analog monitor 2	Output	-10 V to +10 V/0 V to +10 V 2 mA max.
	49	AO C	Analog monitor common	Output	
	50	PC	Multi-function output common	Output	
	51	EDS	Shield Sheath	—	
	52	MB	Fault contact output (NC contact)	Output	
	53	—			
	54	—			
	55	M1	Inverter ready (NO contact)	Output	Dry contact 250 VAC, 1 A max. 30 VDC, 1 A max.
	56	M2		Output	
	57	—			
	58	EDS	Shield Sheath	—	

Non-Regenerative System



Non-Regenerative system comprises of separate rectifier module and inverter module. Refer the following table for combination of rectifier and inverter modules for different voltage ratings and different axis.

Model			Non-Regenerative Rectifier		Inverter Module	
System	Voltage	No. of Axis (P)	EUJ71012x	EUJ71013x	EUJ71001x	EUJ71002x
Non Regenerative	480	1 P	1 no.	–	1 no.	–
Non Regenerative	480	2 P	1 no.	–	2 nos.	–
Non Regenerative	480	3 P	–	1 no.	3 nos.	–
Non Regenerative	480	4 P	–	1 no.	4 nos.	–
Non Regenerative	480	5 P	2 no.	–	5 nos.	–
Non Regenerative	575/690	1 P	1 no.	–	–	1 no.
Non Regenerative	575/690	2 P	1 no.	–	–	2 nos.
Non Regenerative	575/690	3 P	–	1 no.	–	3 nos.
Non Regenerative	575/690	4 P	–	1 no.	–	4 nos.
Non Regenerative	575/690	5 P	2 no.	–	–	5 nos.

Non-Regenerative Rectifier Specification

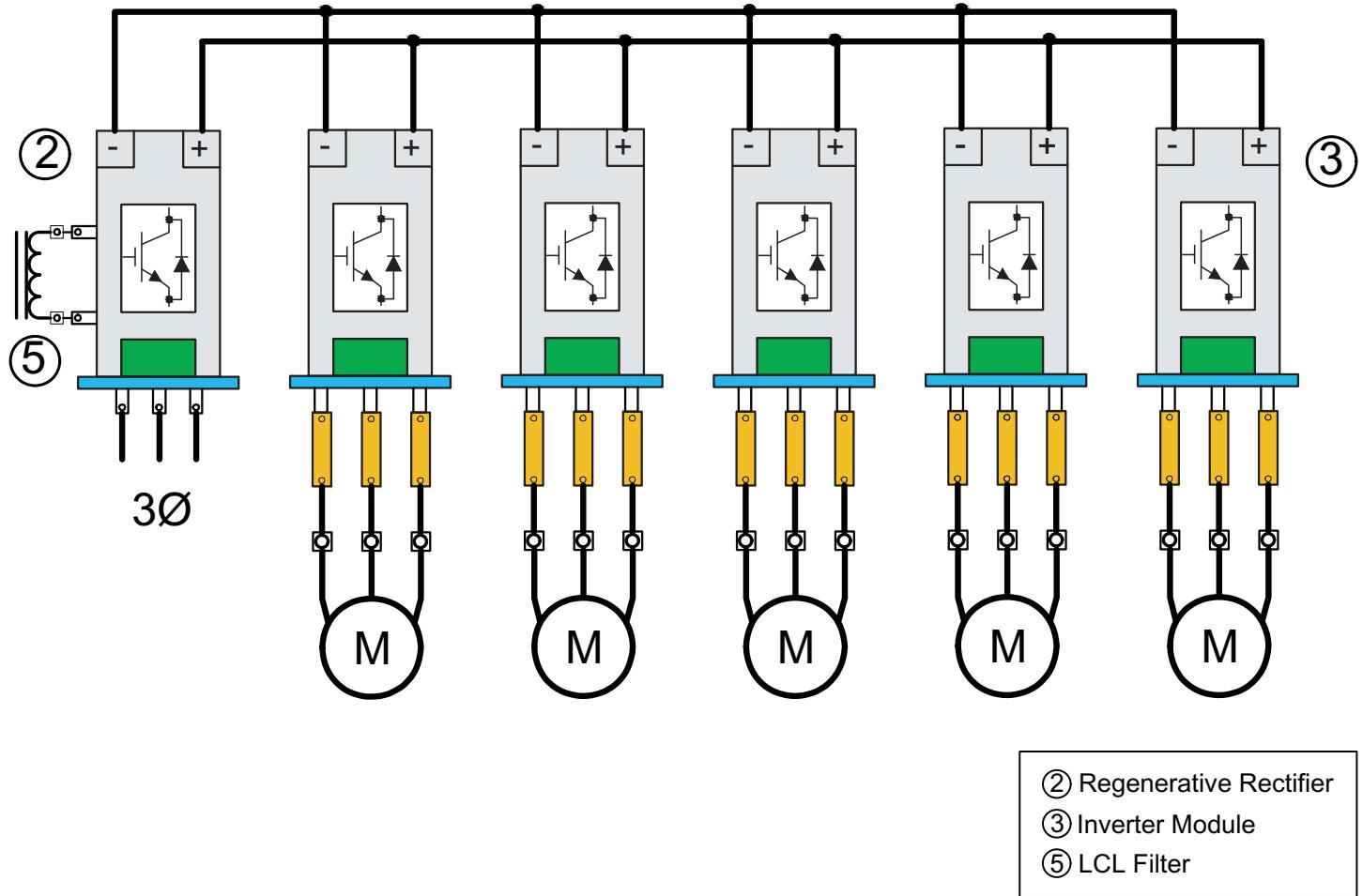
Product Code			EUJ71012x	EUJ71013X	
Input	Rated Input Current (Amps)	Heavy Duty	996	1732	
		Normal Duty	1169	1992	
$i^2 T$ rating			1445000	5445000	
Output	Rated output capacity (kVA) @ 690V	Heavy Duty	1080	1870	
		Normal Duty	1260	2150	
	Output Average current (Amps) (Idc ave)	Heavy Duty	1150	2000	
		Normal Duty	1350	2300	
	Rated output RMS current (Amps) (Idc RMS) @ PF = 0.9	Heavy Duty	1278	2222	
		Normal Duty	1500	2556	
	Overload Capacity	Heavy Duty	150% of rated output current for 60 seconds		
		Normal Duty	120% of rated output current for 60 seconds		
	Max number of inverter modules	460 V	2	4	
		575/690 V	2	4	
Rated input voltage and frequency			AC: 3 ph 380 -690 V 50/60 Hz		
Voltage tolerance			-15~+10%		
Frequency tolerance			±5%		
Power Supply	Source min capacity (kVA)	Heavy Duty	1310	2280	
		Normal Duty	1540	2620	

Inverter Specifications

			EUJ71001X: 480VAC					EUJ71002X: 575VAC / 690VAC					
Number of Inverter Modules			1	2	3	4	5	1	2	3	4	5	
Max motor capacity (kW)		Heavy Duty	263	525	750	938	1200	300	600	938	1200	1500	
		Normal Duty	300	600	750	1125	1350	335	675	1050	1350	1688	
Input	Rated input current (A)	Heavy Duty	452	894	1272	1588	2027	473	939	1461	1864	2326	
		Normal Duty	514	1020	1272	1901	2278	528	1054	1633	2095	2615	
Output	Rated output capacity (kVA)	Heavy Duty	330	640	960	1280	1600	500	960	1440	1920	2400	
		Normal Duty	380	720	1080	1440	1800	560	1080	1620	2160	2690	
Output	Rated output current	Heavy Duty	414	800	1200	1600	2000	414	800	1200	1600	2000	
		Normal Duty	466	900	1350	1800	2250	466	900	1350	1800	2250	
Overload tolerance	Heavy Duty	150% of rated output current for 60 seconds						150% of rated output current for 60 seconds					
	Normal Duty	120% of rated output current for 60 seconds						120% of rated output current for 60 seconds					
Carrier Frequency			2kHz						2kHz				
Max output voltage (V)			3 phase 380V~480 (relative to input voltage)						3 phase 500V~690V (relative to input voltage)				
Max output frequency (Hz)			150Hz						150Hz				
Motor Power	kW	Heavy Duty	261	522	745	1080	1341	373	782	1155	1565	1937	
		Normal Duty	298	596	894	1192	1490	447	857	1304	1751	2198	
Motor Average	Amps	Heavy Duty	397	747	1067	1450	1920	400	800	1105	1533	1924	
Current Rating		Normal Duty	451	800	1281	1708	2135	450	890	1280	1740	2212	
Power Supply Characteristics	Rated voltage / Rated frequency		AC: 380~480V 50/60 Hz DC: 510~680 V						AC: 500~690 V 50/60 Hz DC: 675~975 V				
	Allowable voltage fluctuation		-15~ +10%						-15~ +10%				
Allowable frequency fluctuation			±5%						±5%				
Power Supply kVA	Heavy Duty	420	820	1170	1460	1860	630	1240	1930	2460	3060		
	Normal Duty	480	940	1170	1740	2090	700	1390	2150	2760	3440		

Model	Rated Output Current (A)	
	Normal Duty	Heavy Duty
CIMR-ID4H0466A	466	414
CIMR-ID4H0900A	900	800
CIMR-ID4H1350A	1350	1200
CIMR-ID4H1800A	1800	1600
CIMR-ID4H2250A	2250	2000

Regenerative System



Regenerative system comprises of pre-charge modules, regenerative rectifiers and inverter modules. Refer the following table for pre-charge modules and inverter/converter modules for different voltage ratings and different axis.

Model			Regenerative Rectifier Module		Pre-Charge Module
System	Voltage	No. of P	EUJ71003x	EUJ71004x	EUJ71021x
Regenerative	480	1 P	2 nos.	–	1 no.
Regenerative	480	2 P	4 nos.	–	2 nos.
Regenerative	480	3 P	6 nos.	–	3 nos.
Regenerative	480	4 P	8 nos.	–	4 nos.
Regenerative	480	5 P	10 nos.	–	5 nos.
Regenerative	575/690	1 P	–	2 nos.	1 nos.
Regenerative	575/690	2 P	–	4 nos.	2 nos.
Regenerative	575/690	3 P	–	6 nos.	3 nos.
Regenerative	575/690	4 P	–	8 nos.	4 nos.
Regenerative	575/690	5 P	–	10 nos.	5 nos.

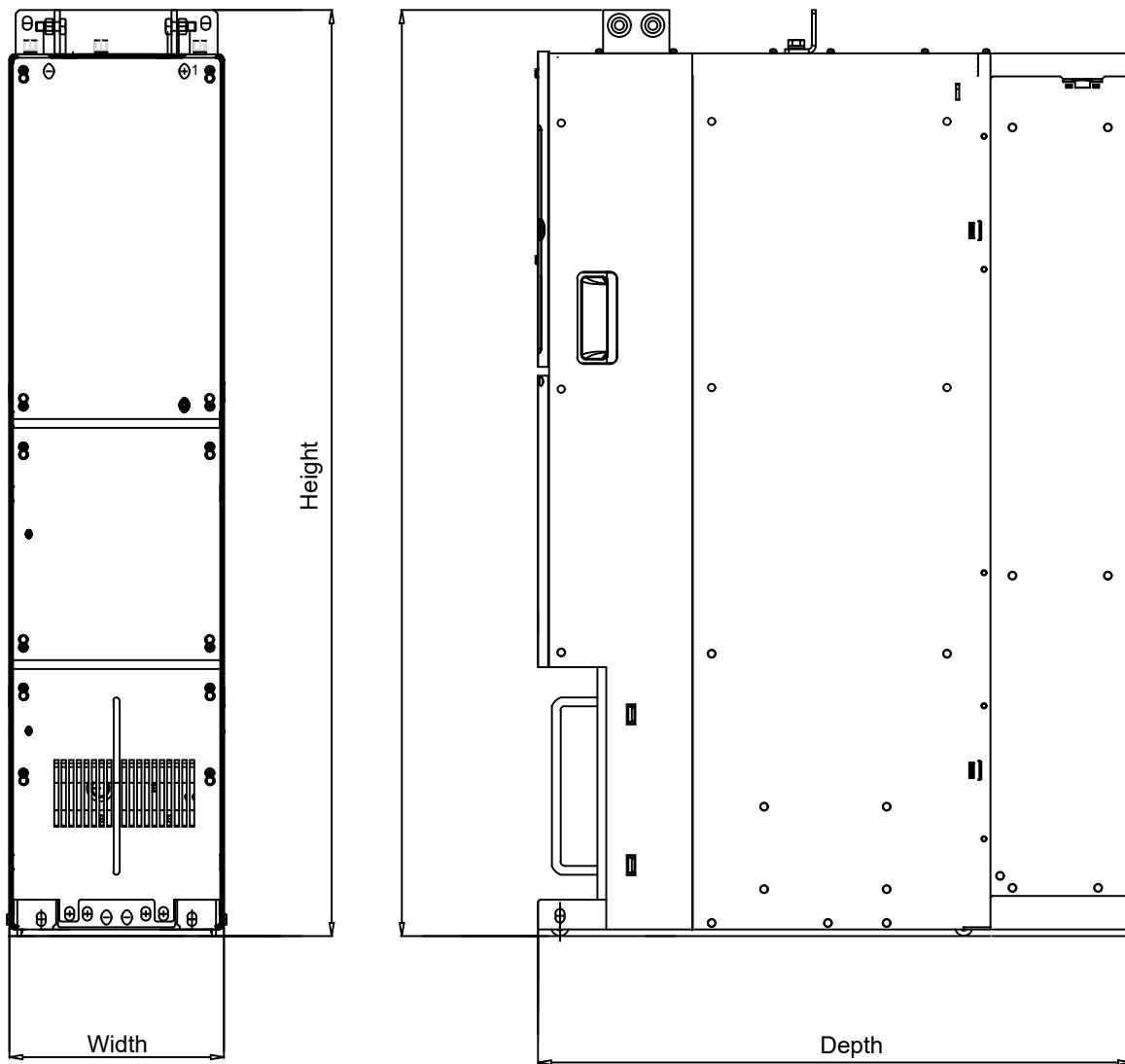
Regenerative Rectifier Specifications

		EUJ71001X: 480VAC					EUJ71002X: 575VAC / 690VAC					
Number of Inverter Modules		1	2	3	4	5	1	2	3	4	5	
Max motor capacity (kW)	Heavy Duty	263	525	750	938	1200	300	600	938	1200	1500	
	Normal Duty	300	600	750	1125	1350	335	675	1050	1350	1688	
Input	Rated input current (A)	Heavy Duty	452	894	1272	1588	2027	473	939	1461	1864	2326
	Normal Duty	514	1020	1272	1901	2278	528	1054	1633	2095	2615	
Output	Rated output capacity (kVA)	Heavy Duty	330	640	960	1280	1600	500	960	1440	1920	2400
	Normal Duty	380	720	1080	1440	1800	560	1080	1620	2160	2690	
	Rated output current	Heavy Duty	414	800	1200	1600	2000	414	800	1200	1600	2000
	Normal Duty	466	900	1350	1800	2250	466	900	1350	1800	2250	
	Overload tolerance	Heavy Duty	150% of rated output current for 60 seconds					150% of rated output current for 60 seconds				
	Normal Duty	120% of rated output current for 60 seconds						120% of rated output current for 60 seconds				
	Carrier Frequency	2kHz					2kHz					
Max output voltage (V)		3 phase 380V~480 (relative to input voltage)					3 phase 500V~690V (relative to input voltage)					
Max output frequency (Hz)		150Hz					150Hz					
Motor Power	kW	Heavy Duty	261	522	745	1080	1341	373	782	1155	1565	1937
		Normal Duty	298	596	894	1192	1490	447	857	1304	1751	2198
Motor Average	Amps	Heavy Duty	397	747	1067	1450	1920	400	800	1105	1533	1924
Current Rating		Normal Duty	451	800	1281	1708	2135	450	890	1280	1740	2212
Power Supply Characteristics	Rated voltage / Rated frequency		AC: 380~480V 50/60 Hz DC: 510~680 V					AC: 500~690 V 50/60 Hz DC: 675~975 V				
	Allowable voltage fluctuation		-15~ +10%					-15~ +10%				
	Allowable frequency fluctuation		±5%					±5%				
	Power Supply kVA	Heavy Duty	420	820	1170	1460	1860	630	1240	1930	2460	3060
		Normal Duty	480	940	1170	1740	2090	700	1390	2150	2760	3440

Model	Rated Output Current (A)	
	Normal Duty	Heavy Duty
CIMR-DD4H0466	466	414
CIMR-DD4H0900A	900	800
CIMR-DD4H1350A	1350	1200
CIMR-DD4H1800A	1800	1600
CIMR-DD4H2250A	2250	2000

Unit Dimensions

Model No.	Voltage Class (v)	Mass (kg)
EUJ71001X	480	126



Dimensions

Model	Height (H)	Width (W)	Depth (D)	Mass (Kg)
EUJ71001x	1044	242	669	126
EUJ71002x	1044	242	669	138
EUJ71003x	1044	242	669	120
EUJ71004x	1044	242	669	132
EUJ71012x	794	280	494	66
EUJ71013x	1094	280	494	108

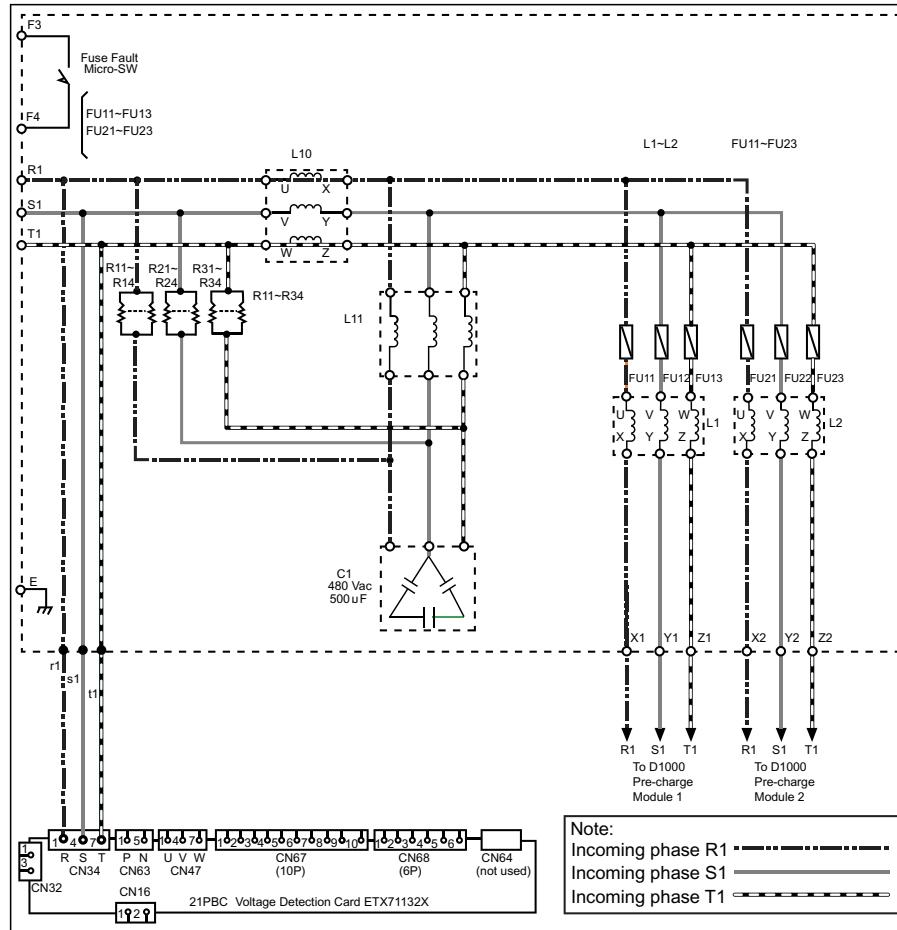
NOTE:

1. All dimensions are in mm.
2. Refer the sample dimensional drawing of model: EUJ1001x.
3. For detailed information and dimensional drawing, contact YASKAWA representative.

Common Specifications

Item	Specification	
Control Method	V/F Control, V/F Control with PG, Open Loop Vector Control Closed Loop Vector Control with PG, Advanced Closed Loop Vector Control	
Frequency Control Range	0.01 Hz to 150 Hz	
Frequency Accuracy (temperature fluctuation)	Digital Reference Input: +/- 0.01% of the max. output frequency (-10 to +40 degrees C) Analog reference Input: +/- 0.1% of the max. output frequency (-10 to +40 degrees C)	
Frequency Setting Resolution	Digital Reference Input: 0.01 Hz Analog Reference Input: 0.03 Hz at 60 Hz (1/2048 of max. output frequency setting, 11 bit plus sign)	
Output Frequency Resolution	0.001 Hz	
Frequency Reference Setting Signal	-10 to +10 Volts, 0 to +10 Volts, 4 to 20mA, pulse train	
Starting Torque	V/F, V/F with PG: 150% at 3 Hz Open Loop Vector, Advanced Open Loop Vector: 200% at 0.3 Hz, Closed Loop Vector: 200% at 0 RPM	
Speed Control Range	V/F, V/F with PG: (1:40) Open Loop Vector, Advanced Open Loop Vector: (1:200), Closed Loop Vector: (1:1500)	
Speed Control Accuracy	Open Loop Vector: +/- 0.2% (25 degrees C +/- 10 degrees C), Closed Loop Vector: +/- 0.02% (25 degrees C +/- 10 degrees C)	
Speed Response	Open Loop Vector: 10 Hz (25 degrees C +/- 10 degrees C), Closed Loop Vector: 50 Hz (25 degrees C +/- 10 degrees C)	
Torque Limit	Separate limit settings in four quadrants for OLC, CLV, Advanced CLV	
Accel / Decel Time	0.00 to 6000.0 seconds (4 selectable combinations of independent accel and decel settings)	
Braking Torque	Based on external braking or regenerative system	
V / F Characteristics	User selected programs and pre set V / F patterns are available	
Main Control Functions	Torque Control, Droop Control, Speed/torque Control Switching, Feed Forward Control, Zero ServoFunction, Momentary Power Loss Ride-Thru, Speed Search, Overtorque/Undertorque Detection, Torque Limit, 17 Step Speed (max), Accel/decel Switch, S-curve Accel/decel, 3-wire Sequence, Auto-tuning (rotational, stationary tuning), Dwell, Cooling Fan on/off Switch, Slip Compensation, Torque Compensation, Frequency Jump, Upper/lower Limits for Frequency Reference, DC Injection Braking at Start and Stop, Overexcitation Braking, High Slip Braking, PID Control (with sleep function), Energy Saving Control, MEMOBUS/Modbus Comm. (RS-422/485 max, 115.2 kbps), Fault Restart, Application Presets, DriveWorksEZ (customized function), Overexcitation Deceleration, Inertia (ASR) Tuning, Overvoltage Suppression, High Frequency Injection	
Motor Protection	Motor overheat protection based on output current	
Instantaneous Overcurrent Protection	Drive stops when output current exceeds 200% of rated output current (heavy duty rating)	
Overload Protection	Drive stops after 60 seconds at 150% of rated output current (heavy duty rating)	
DC Bus	480V input	Stops when the DC bus is higher than approximately 820 Vdc
Overvoltage Protection	575V input	Stops when the DC bus is higher than approximately 1040 Vdc
	690V input	Stops when the DC bus is higher than approximately 1196 Vdc
DC Bus	480V input	Stops when the DC bus is lower than approximately 380 Vdc
Under Voltage Protection	575V input	Stops when the DC bus is lower than approximately 475 Vdc
	690V input	Stops when the DC bus is lower than approximately 570 Vdc
Momentary Power Loss Ride Through		Immediately stops after a 15 mSecs or longer power loss (default). Continuous operation during a power loss shorter than 2 seconds (standard)
Heatsink Overheat Protection		Thermistor
Stall Prevention		Stall prevention is available during acceleration/deceleration and during constant speed operation
Ground Fault Protection		Protection by electronic circuit
Charge LED Indicator		Charge LED remains on until DC bus voltage becomes 50 V or less
Discharging Time		Approximately 10 minutes or until DC bus voltage becomes 50 V or less
Environment	Area of Use	Indoors, Inside a cabinet or panel
	Ambient Operating Temperature	-10~45° c
	Humidity	95% or less (non condensing)
	Storage Temperature	-20~60°
	Altitude	Up to 1000 meters
	Vibration	10 Hz~55 Hz, 2.0m/s ²
Protection Design	IP00	
Safety Standard	UL 508C	

Reactor Section



Terminal Functions

Terminal Name		Signal Name	Specifications
Main Circuit Input Terminal	R1	Main circuit phase-R input	Main circuit three-phase input Note: Main circuit inputs should be wired directly to the terminals on the AC reactor for 480 V class 600 kW or larger models and 690 V class 1050 kW or larger models.
	S1	Main circuit phase-S input	
	T1	Main circuit phase-T input	
Main Circuit Output Terminal	X1, X2	Main circuit phase-X output	Main circuit three-phase output The number of terminals on the AC reactor varies by capacity (max. 5 groups of 3 phases).
	Y1, Y2	Main circuit phase-Y output	
	Z1, Z2	Main circuit phase-Z output	

Environmental Conditions

Conditions		Specifications
Applicable Standards		JIS, JEM, JEC
Environment	Atmosphere	General environmental conditions (free from dust and corrosive gases)
	Ambient Temperature	-10°C to +45°C
	Humidity	90% RH (no condensation)
	Storage Temperature	-20°C to +60°C (temperature applicable for a short time of storage such as during transportation)
	Altitude	1000 m or less
	Area of Use	Indoors
	Vibration	2.0 m/s ² at 10 Hz to 55 Hz
Cabinet Specifications		Vertically-standalone type
Painting		5Y7/1 both for inner and outer surfaces
Enclosure		IP20

System BOM

In the following section, the parts listed are the major components of the 480-volt system and the 575/690 volt system modular inverter system for each model type, 1P through 5P. The listed parts are supplied by YASKAWA. The enclosure, input disconnect, etc. are not listed and it is responsibility of the system designer.

480V Non-Regenerative Rectifier Components

Item No.	Description	Part Number	Qty
1	Converter Rectifier Module	EUJ71012X	1
2	DC Link Reactor, 600A, 0.119mH, 690V	300-032-126	1

Table 1: Non-Regenerative Rectifier (480V, 1P) CIMR-ND4H0466 Components

Item No.	Description	Part Number	Qty
1	Converter Rectifier Module	EUJ71012X	1
2	DC Link Reactor, 1200A, 0.061mH, 690V	300-032-127	1

Table 2: Non-Regenerative Rectifier (480V, 2P) CIMR-ND4H0900 Components

Item No.	Description	Part Number	Qty
1	Converter Rectifier Module	EUJ71013X	1
2	DC Link Reactor, 1800A, 0.041mH, 690V	300-032-125	1

Table 3: Non-Regenerative Rectifier (480V, 3P) CIMR-ND4H1350 Components

Item No.	Description	Part Number	Qty
1	Converter Rectifier Module	EUJ71013X	1
2	DC Link Reactor, 1200A, 0.061mH, 690V	300-032-127	2

Table 4: Non-Regenerative Rectifier (480V, 4P) CIMR-ND4H1800 Components

Item No.	Description	Part Number	Qty
1	Converter Rectifier Module	EUJ71012X	2
2	DC Link Reactor, 1800A, 0.041mH, 690V	300-032-125	2

Table 5: Non-Regenerative Rectifier (480V, 5P) CIMR-ND4H2250 Components

480V Inverter Components

Item No.	Description	Part Number	Qty
1	Inverter Drive Module	EUJ71001X	1
2	Control Module, A1000	EUA71001X	1
3	Power Supply Module	EUS70001X	1
4	Transformer, 480 V, 1.5 kVA	300-030-266	1
5	Control Terminal Block, (1TB)	FC-50HR	1

Table 6: Inverter (480V, 1P) CIMR-ID4H0466 Components

Item No.	Description	Part Number	Qty
1	Inverter Drive Module	EUJ71001X	2
2	AC Output Reactor, 466A, 0.01mH, 480V	300-030-428	2
3	Control Module, A1000	EUA71001X	1
4	Power Supply Module	EUS70001X	1
5	Transformer, 480 V, 1.5 kVA	300-030-266	1
6	Control Terminal Block, (1TB)	FC-50HR	1

Table 7: Inverter (480V, 2P) CIMR-ID4H0900 Components

Item No.	Description	Part Number	Qty
1	Inverter Drive Module	EUJ71001X	3
2	AC Output Reactor, 466A, 0.01mH, 480V	300-030-428	3
3	Control Module, A1000	EUA71001X	1
4	Power Supply Module	EUS70001X	1
5	Transformer, 480 V, 1.5 kVA	300-030-266	1
6	Control Terminal Block, (1TB)	FC-50HR	1

Table 8: Inverter (480V, 3P) CIMR-ID4H1350 Components

Item No.	Description	Part Number	Qty
1	Inverter Drive Module	EUJ71001X	4
2	AC Output Reactor, 466A, 0.01mH, 480V	300-030-428	4
3	Control Module, A1000	EUA71001X	1
4	Power Supply Module	EUS70001X	1
5	Transformer, 480 V, 1.5 kVA	300-030-266	1
6	Control Terminal Block, (1TB)	FC-50HR	1

Table 9: Inverter (480V, 4P) CIMR-ID4H1800 Components

Item No.	Description	Part Number	Qty
1	Inverter Drive Module	EUJ71001X	5
2	AC Output Reactor, 466A, 0.01mH, 480V	300-030-428	5
3	Control Module, A1000	EUA71001X	1
4	Power Supply Module	EUS70001X	1
5	Transformer, 480 V, 2.0 kVA	300-030-268	1
6	Control Terminal Block, (1TB)	FC-50HR	1

Table 10: Inverter (480V, 5P) CIMR-ID4H2250 Components

480V Regenerative Rectifier Components

Regenerative Rectifier (480V, 1P) CIMR-DD4H0466 Components

Item No.	Description	Part Number	Qty	Comment
1	Main Input Reactor	300-030-420	1	480V,466A,0.057mH
2	Input Reactors	300-030-291	1	480V,466A,0.19mH
3	Input Fuses	300-030-872	3	480V,700A
4	Filter Reactor	300-031-568	1	480V,61A0.03mH
5	Filter Capacitor Assembly	300-030-378	1	480V,250uF,5%
6	Damping Resistor	300-033-348	6	400W,8 Ohm each,2 per phase

Table 11: Components for ACL Input Section for A1000 HHP, 1P Regen System, 480V

Item No.	Description	Part Number	Qty	Comment
1	Regen Control Module	EUA71002X	1	-
2	Power Supply Module	EUS70001X	1	-
3	Transformer	300-030-266	1	480V,1.5 kVA
4	Inverter/Regen Converter Module	EUJ71003X	1	-
5	Pre Charge Module	EUJ71021X	1	-
6	I/O Terminal Block	FC-50HR	1	-

Table 12: Modules and Components for A1000 HHP, Regen Section, for 1P Regen System, 480V

Regenerative Rectifier (480V, 2P) CIMR-DD4H0900 Components

Item No.	Description	Part Number	Qty	Comment
1	Main Input Reactor	300-030-421	1	480V,900A,0.029mH
2	Input Reactors	300-030-291	2	480V,466A,0.19mH
3	Input Fuses	300-030-872	6	480V,700A
4	Filter Reactor	300-031-569	1	480V,123A,0.015mH
5	Filter Capacitor Assembly	300-030-379	1	480V,500uF,5%
6	Damping Resistor	300-033-348	12	400W,8 Ohm each,4 per phase

Table 13: Components for ACL Input Section for A1000 HHP, 2P Regen System, 480V

Item No.	Description	Part Number	Qty	Comment
1	Regen Control Module	EUA71002X	1	-
2	Power Supply Module	EUS70001X	1	-
3	Transformer	300-030-266	1	480V,1.5 kVA
4	Inverter/Regen Converter Module	EUJ71003X	2	-
5	Pre Charge Module	EUJ71021X	2	-
6	I/O Terminal Block	FC-50HR	1	-

Table 14: Modules and Components for A1000 HHP, Regen Section ,for 2P Regen System, 480V

Regenerative Rectifier (480V, 3P) CIMR-DD4H1350 Components

Item No.	Description	Part Number	Qty	Comment
1	Main Input Reactor	300-030-422	1	480V,1350A,0.02mH
2	Input Reactors	300-030-291	3	480V,466A,0.19mH
3	Input Fuses	300-030-872	9	480V,700A
4	Filter Reactor	300-031-570	1	480V,184A,0.01mH
5	Filter Capacitor Assembly	300-030-380	1	480V,750uF,5%
6	Damping Resistor	300-033-348	18	400W,8 Ohm each,6 per phase

Table 15: Components for ACL Input Section for A1000 HHP, 3P Regen System, 480V

Item No.	Description	Part Number	Qty	Comment
1	Regen Control Module	EUA71002X	1	-
2	Power Supply Module	EUS70001X	1	-
3	Transformer	300-030-266	1	480V,1.5 kVa
4	Inverter/Regen Converter Module	EUJ71003X	4	-
5	Pre Charge Module	EUJ71021X	4	-
6	I/O Terminal Block	FC-50HR	1	-

Table 16: Modules and Components for A1000 HHP, Regen Section, for 3P Regen System, 480V

Regenerative Rectifier (480V, 4P) CIMR-DD4H1800 Components

Item No.	Description	Part Number	Qty	Comment
1	Main Input Reactor	300-030-423	1	480V,1800A,0.015mH
2	Input Reactors	300-030-291	4	480V,466A,0.19mH
3	Input Fuses	300-030-872	12	480V,700A
4	Filter Reactor	300-031-571	1	480V,246A,0.0075mH
5	Filter Capacitor Assembly	300-030-381	1	480V,1000uF,5%
6	Damping Resistor	300-033-348	24	400W,8 Ohm each,8 per phase

Table 17: Components for ACL Input Section for A1000 HHP, 4P Regen System, 480V

Item No.	Description	Part Number	Qty	Comment
1	Regen Control Module	EUA71002X	1	-
2	Power Supply Module	EUS70001X	1	-
3	Transformer	300-030-266	1	480V,1.5 kVa
4	Inverter/Regen Converter Module	EUJ71003X	4	-
5	Pre Charge Module	EUJ71021X	4	-
6	I/O Terminal Block	FC-50HR	1	-

Table 18: Modules and Components for A1000 HHP, Regen Section, for 4P Regen System, 480V

Regenerative Rectifier (480V, 5P) CIMR-DD4H2250 Components

Item No.	Description	Part Number	Qty	Comment
1	Main Input Reactor	300-030-424	1	480V,2250A,0.012mH
2	Input Reactors	300-030-291	5	480V,466A,0.19mH
3	Input Fuses	300-030-872	15	480V,700A
4	Filter Reactor	300-031-720	1	480V,307A,0.006mH
5	Filter Capacitor Assembly	300-030-382	1	480V,1250uF,5%
6	Damping Resistor	300-033-348	30	400W,8 Ohm each,10 per phase

Table 19: Components for ACL Input Section for A1000 HHP, 5P Regen System, 480V

Item No.	Description	Part Number	Qty	Comment
1	Regen Control Module	EUA71002X	1	-
2	Power Supply Module	EUS70001X	1	-
3	Transformer	300-030-266	1	480V,1.5 kVa
4	Inverter/Regen Converter Module	EUJ71003X	5	-
5	Pre Charge Module	EUJ71021X	5	-
6	I/O Terminal Block	FC-50HR	1	-

Table 20: Modules and Components for A1000 HHP, Regen Section, for 5P Regen System, 480V

575V/690V Non-Regenerative Rectifier Components

Item No.	Description	Part Number	Qty
1	Converter Rectifier Module	EUJ71012X	1
2	DC Link Reactor, 600A, 0.119mH, 690V	300-032-126	1

Table 21: Non-Regenerative Rectifier (575V/690V, 1P) CIMR-ND6H0466 Components

Item No.	Description	Part Number	Qty
1	Converter Rectifier Module	EUJ71012X	1
2	DC Link Reactor, 1200A, 0.061mH, 690V	300-032-127	1

Table 22: Non-Regenerative Rectifier (575V/690V, 2P) CIMR-ND6H0900 Components

Item No.	Description	Part Number	Qty
1	Converter Rectifier Module	EUJ71013X	1
2	DC Link Reactor, 1800A, 0.041mH, 690V	300-032-125	1

Table 23: Non-Regenerative Rectifier (575V/690V, 3P) CIMR-ND6H1350 Components

Item No.	Description	Part Number	Qty
1	Converter Rectifier Module	EUJ71013X	1
2	DC Link Reactor, 1200A, 0.061mH, 690V	300-032-127	2

Table 24: Non-Regenerative Rectifier (575V/690V, 4P) CIMR-ND6H1800 Components

Item No.	Description	Part Number	Qty
1	Converter Rectifier Module	EUJ71012X	2
2	DC Link Reactor, 1800A, 0.041mH, 690V	300-032-125	2

Table 25: Non-Regenerative Rectifier (575V/690V, 5P) CIMR-ND6H2250 Components

575V/690V Inverter Components

Item No.	Description	Part Number	Qty
1	Inverter Drive Module	EUJ71002X	1
2	Control Module, A1000	EUA71001X	1
3	Power Supply Module	EUS70002X	1
4	Transformer, 690 V, 1.5 kVA	300-030-265	1
5	Control Terminal Block, (1TB)	FC-50HR	1

Table 26: Inverter (575V/690V, 1P) CIMR-ID6H0466 Components

Item No.	Description	Part Number	Qty
1	Inverter Drive Module	EUJ71002X	2
2	AC Output Reactor, 466A, 0.01mH, 690V	300-030-429	2
3	Control Module, A1000	EUA71001X	1
4	Power Supply Module	EUS70002X	1
5	Transformer, 690 V, 1.5 kVA	300-030-265	1
6	Control Terminal Block, (1TB)	FC-50HR	1

Table 27: Inverter (575V/690V, 2P) CIMR-ID6H0900 Components

Item No.	Description	Part Number	Qty
1	Inverter Drive Module	EUJ71002X	3
2	AC Output Reactor, 466A, 0.01mH, 690V	300-030-429	3
3	Control Module, A1000	EUA71001X	1
4	Power Supply Module	EUS70002X	1
5	Transformer, 690 V, 1.5 kVA	300-030-265	1
6	Control Terminal Block, (1TB)	FC-50HR	1

Table 28: Inverter (575V/690V, 3P) CIMR-ID6H1350 Components

Item No.	Description	Part Number	Qty
1	Inverter Drive Module	EUJ71002X	4
2	AC Output Reactor, 466A, 0.01mH, 690V	300-030-429	4
3	Control Module, A1000	EUA71001X	1
4	Power Supply Module	EUS70002X	1
5	Transformer, 690 V, 1.5 kVA	300-030-265	1
6	Control Terminal Block, (1TB)	FC-50HR	1

Table 29: Inverter (575V/690V, 4P) CIMR-ID6H1800 Components

Item No.	Description	Part Number	Qty
1	Inverter Drive Module	EUJ71002X	5
2	AC Output Reactor, 466A, 0.01mH, 690V	300-030-429	5
3	Control Module, A1000	EUA71001X	1
4	Power Supply Module	EUS70002X	1
5	Transformer, 690 V, 2.0 kVA	300-030-267	1
6	Control Terminal Block, (1TB)	FC-50HR	1

Table 30: Inverter (575V/690V, 5P) CIMR-ID6H2250 Components

575V/690V Regenerative Rectifier Components

Regenerative Rectifier (575V/690V, 1P) CIMR-DD6H0466 Components

Item No.	Description	Part Number	Qty	Comment
1	Main Input Reactor	300-030-425	1	690V,466A,0.082mH
2	Input Reactors	300-030-292	1	690V,466A,0.27mH
3	Input Fuses	300-030-444	3	1100V,800A
4	Filter Reactor	300-031-721	1	690V,63A,0.0417mH
5	Filter Capacitor Assembly	300-030-383	1	690V,180uF,5%
6	Damping Resistor	300-033-349	6	500W,12 Ohm each,2 per phase

Table 31: Components for ACL Input Section for A1000 HHP, 1P Regen System, 575/690V

Item No.	Description	Part Number	Qty	Comment
1	Regen Control Module	EUA71002X	1	-
2	Power Supply Module	EUS70002X	1	-
3	Transformer	300-030-265	1	690V,1.5kVa
4	Inverter/Regen Converter Module	EUJ71004X	1	-
5	Pre Charge Module	EUJ71021X	1	-
6	I/O Terminal Block	FC-50HR	1	-

Table 32: Modules and Components for A1000 HHP, Regen Section, for 1P Regen System, 575/690V

Regenerative Rectifier (575V/690V, 2P) CIMR-DD6H0900 Components

Item No.	Description	Part Number	Qty	Comment
1	Main Input Reactor	300-030-426	1	690V,900A,0.042mH
2	Input Reactors	300-030-292	2	690V,466A,0.27mH
3	Input Fuses	300-030-444	6	1100V,800A
4	Filter Reactor	300-031-722	1	690V,127A,0.0208mH
5	Filter Capacitor Assembly	300-030-384	1	690V,360uF,5%
6	Damping Resistor	300-033-349	12	500W,12 Ohm each,4 per phase

Table 33: Components for ACL Input Section for A1000 HHP, 2P Regen System, 575/690V

Item No.	Description	Part Number	Qty	Comment
1	Regen Control Module	EUA71002X	1	-
2	Power Supply Module	EUS70002X	1	-
3	Transformer	300-030-265	1	690V,1.5kVa
4	Inverter/Regen Converter Module	EUJ71004X	2	-
5	Pre Charge Module	EUJ71021X	2	-
6	I/O Terminal Block	FC-50HR	1	-

Table 34: Modules and Components for A1000 HHP, Regen Section, for 2P Regen System, 575/690V

Regenerative Rectifier (575V/690V, 3P) CIMR-DD6H1350 Components

Item No.	Description	Part Number	Qty	Comment
1	Main Input Reactor	300-030-290	1	690V,1350A,0.028mH
2	Input Reactors	300-030-292	3	690V,466A,0.27mH
3	Input Fuses	300-030-444	9	1100V,800A
4	Filter Reactor	300-031-723	1	690V,190A,0.0139mH
5	Filter Capacitor Assembly	300-030-385	1	690V,540uF,5%
6	Damping Resistor	300-033-349	18	500W,12 Ohm each,6 per phase

Table 35: Components for ACL Input Section for A1000 HHP, 3P Regen System, 575/690V

Item No.	Description	Part Number	Qty	Comment
1	Regen Control Module	EUA71002X	1	-
2	Power Supply Module	EUS70002X	1	-
3	Transformer	300-030-265	1	690V,1.5kVa
4	Inverter/Regen Converter Module	EUJ71004X	3	-
5	Pre Charge Module	EUJ71021X	3	-
6	I/O Terminal Block	FC-50HR	1	-

Table 36: Modules and Components for A1000 HHP, Regen Section, for 3P Regen System, 575/690V

Regenerative Rectifier (575V/690V, 4P) CIMR-DD6H1800 Components

Item No.	Description	Part Number	Qty	Comment
1	Main Input Reactor	300-030-289	1	690V,1800A,0.021mH
2	Input Reactors	300-030-292	4	690V,466A,0.27mH
3	Input Fuses	300-030-444	12	1100V,800A
4	Filter Reactor	300-031-724	1	690V,254A,0.0104mH
5	Filter Capacitor Assembly	300-030-386	1	690V,720uF,5%
6	Damping Resistor	300-033-349	24	500W,12 Ohm each,8 per phase

Table 37: Components for ACL Input Section for A1000 HHP, 4P Regen System, 575/690V

Item No.	Description	Part Number	Qty	Comment
1	Regen Control Module	EUA71002X	1	-
2	Power Supply Module	EUS70002X	1	-
3	Transformer	300-030-265	1	690V,1.5kVa
4	Inverter/Regen Converter Module	EUJ71004X	4	-
5	Pre Charge Module	EUJ71021X	4	-
6	I/O Terminal Block	FC-50HR	1	-

Table 38: Modules and Components for A1000 HHP, Regen Section, for 4P Regen System, 575/690V

Regenerative Rectifier (575V/690V, 5P) CIMR-DD6H2250 Components

Item No.	Description	Part Number	Qty	Comment
1	Main Input Reactor	300-030-427	1	690V,2250A,0.017mH
2	Input Reactors	300-030-292	5	690V,466A,0.27mH
3	Input Fuses	300-030-444	15	1100V,800A
4	Filter Reactor	300-031-725	1	690V,317A,0.0083mH
5	Filter Capacitor Assembly	300-030-387	1	690V,900uF,5%
6	Damping Resistor	300-033-349	30	500W,12 Ohm each,10 per phase

Table 39: Components for ACL Input Section for A1000 HHP, 5P Regen System, 575/690V

Item No.	Description	Part Number	Qty	Comment
1	Regen Control Module	EUA71002X	1	-
2	Power Supply Module	EUS70002X	1	-
3	Transformer	300-030-265	1	690V,1.5kVA
4	Inverter/Regen Converter Module	EUJ71004X	5	-
5	Pre Charge Module	EUJ71021X	5	-
6	I/O Terminal Block	FC-50HR	1	-

Table 40: Modules and Components for A1000 HHP, Regen Section, for 5P Regen System, 575/690V



Watt Loss Data

Regenerative System (without ACL Panel)

Input Voltage	Inverter / Rectifier	Loss Type	Heavy Duty					Normal Duty				
			1P	2P	3P	4P	5P	1P	2P	3P	4P	5P
480V	Inverter	Internal loss	1014	2044	2990	3925	4830	1144	2353	3453	4542	5601
		External loss	2449	4702	7053	9404	11754	2821	5410	8115	10820	13525
		Total loss	3463	6746	10042	13328	16585	3965	7764	11568	15362	19126
	Regenerative Rectifier	Internal loss	1116	1996	2918	3829	4710	1274	2296	3367	4428	5458
		External loss	2449	4702	7053	9404	11754	2821	5410	8115	10820	13525
		Total loss	3565	6698	9970	13232	16465	4095	7707	11482	15248	18984
575V	Inverter	Internal loss	1408	2814	4137	5449	6777	1580	3203	4720	6226	7747
		External loss	3736	7191	10786	14382	17977	4267	8204	12305	16407	20509
		Total loss	5143	10005	14924	19831	24754	5847	11407	17025	22633	28256
	Regenerative Rectifier	Internal loss	1510	2766	4065	5353	6657	1710	3146	4634	6112	7605
		External loss	3736	7191	10786	14382	17977	4267	8204	12305	16407	20509
		Total loss	5246	9957	14852	19735	24634	5977	11350	16940	22519	28114
690V	Inverter	Internal loss	1285	2592	3804	5005	6223	1460	2978	4383	5776	7185
		External loss	3201	6209	9313	12418	15522	3736	7191	10786	14382	17977
		Total loss	4486	8801	13117	17423	21745	5196	10169	15169	20158	25162
	Regenerative Rectifier	Internal loss	1362	2499	3665	4819	5990	1563	2870	4221	5560	6915
		External loss	3201	6209	9313	12418	15522	3736	7191	10786	14382	17977
		Total loss	4564	8708	12978	17237	21512	5298	10061	15007	19942	24892

Non-Regenerative System

Input Voltage	Loss Type	Heavy Duty					Normal Duty				
		1P	2P	3P	4P	5P	1P	2P	3P	4P	5P
480V	Internal loss	1526	2995	4127	5603	6881	1684	3372	4478	6400	7735
	External loss	3135	6221	9081	12036	15296	3615	7196	10143	14094	17622
	Total loss	4661	9216	13208	17639	22178	5300	10567	14621	20494	25357
575V	Internal loss	1846	3616	5179	7026	8654	2036	4053	5834	7898	9751
	External loss	4326	8484	12713	16948	21330	4993	9691	14500	19359	24386
	Total loss	6172	12100	17892	23973	29984	6969	13744	20333	27257	34137

Regenerative ACL Panel Watt Loss

Heavy Duty Operation Losses					
Input Voltage	1P	2P	3P	4P	5P
480V	2080	4080	6060	7830	9670
575/690V	2440	4840	7090	9480	11520

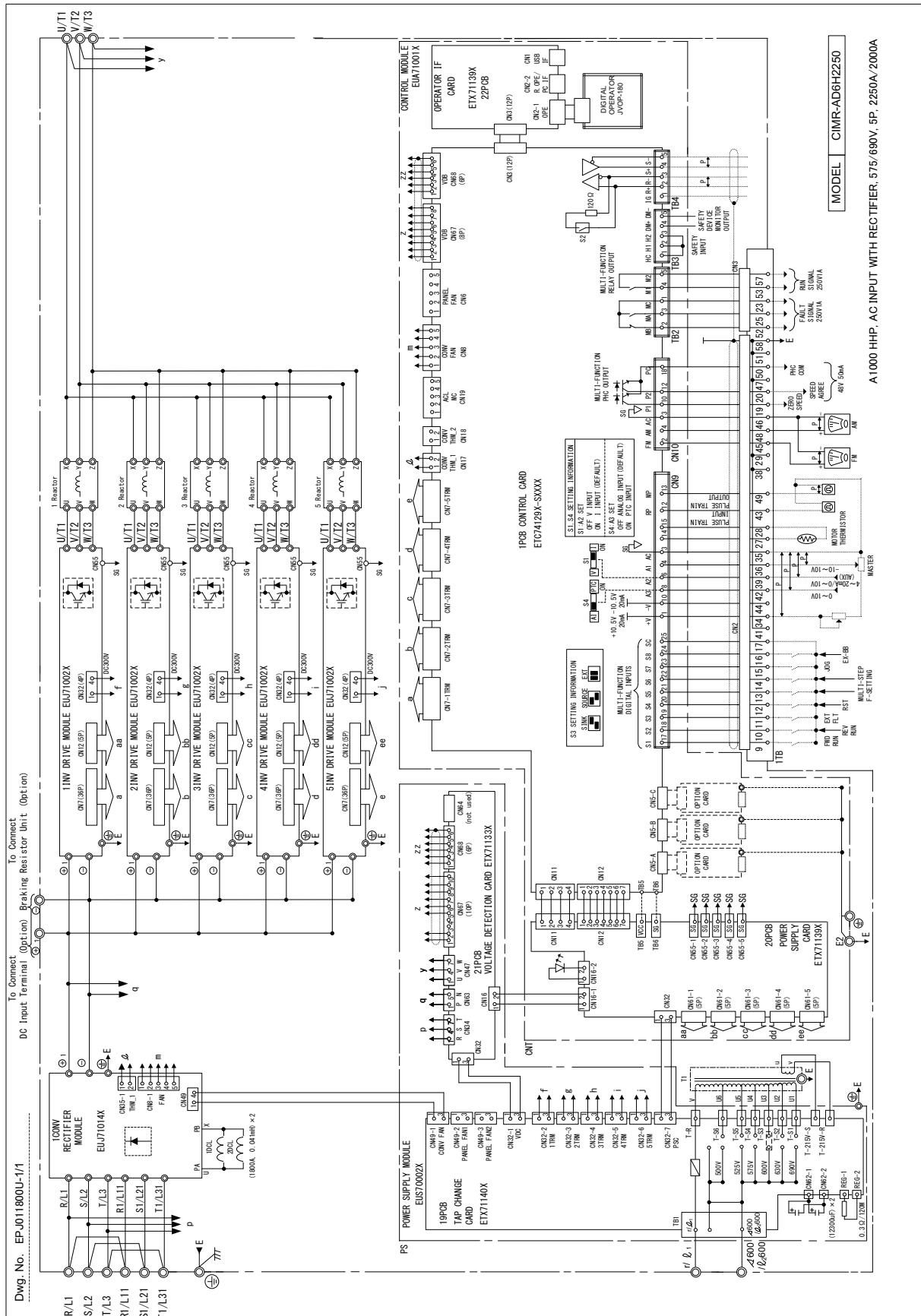
Note: All values are in watts.

Option Cards

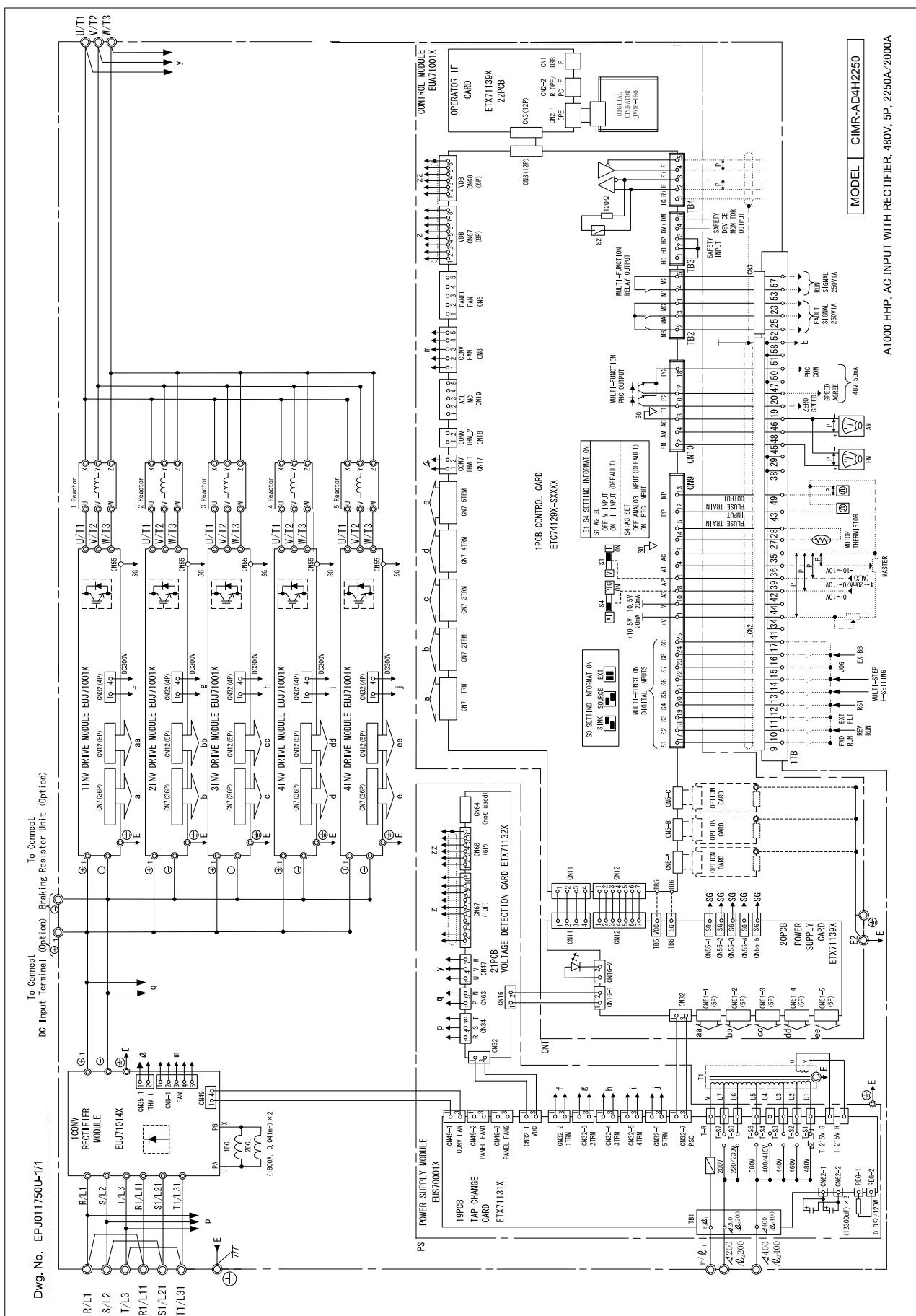
Type	Name	Model	Function
Speed Reference Card	Analog Input	AI-A3	<p>Enables high-precision and high-resolution analog speed reference setting.</p> <ul style="list-style-type: none"> Input signal level: -10 to +10 Vdc (20 kΩ), 4 to 20 mA (250 Ω) Input channels: 3 channels, DIP switch for input voltage/input current selection Input resolution: Input voltage 13 bit signed (1/8192) Input current 1/4096
	Digital Input	DI-A3	<p>Enables 16-bit digital speed reference setting.</p> <ul style="list-style-type: none"> Input signal: 16 bit binary, 2 digit BCD +sign signal +set signal Input voltage: 24 V (isolated) Input current: 8 mA <p>User-set: 8 bit, 12 bit, 16 bit</p>
Communications Option Card	MECHATROLINK- II Interface	SI-T3	<p>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.</p> <p>Note: Use options with software versions of 6108 or later.</p>
	MECHATROLINK- III Interface	SI-ET3	<p>Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through MECHATROLINK- III communication with the host controller.</p> <p>Note: Use options with software versions of 6202 or later."</p>
	CC-Link Interface	SI-C3	<p>Used for running or stopping the drive, setting or referencing parameters, and monitoring output frequency, output current, or similar items through CC-Link communication with the host controller.</p>
	BACnet Interface	SI-B3	<p>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.</p>
	DeviceNet Interface	SI-N3	<p>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.</p> <p>Note: Use options with software versions of 1114 or later.</p>
	LONWORKS Interface	SI-W3	<p>Used for HVAC control, running or stopping the drive, setting or referencing parameters, and monitoring output current, watt-hours, or similar items through LONWORKS communications with the host controller.</p>
	PROFIBUS-DP Interface	SI-P3	<p>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.</p>
	CANopen Interface	SI-S3	<p>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.</p>
	EtherCAT Interface	SI-ES3	<p>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.</p>
	EtherNet/IP Interface	SI-EN3	<p>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.</p>
Monitor Option Card	Modbus TCP/IP Interface	SI-EM3	<p>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.</p>
	PROFINET Interface	SI-EP3	<p>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.</p>
PG Speed Controller Card	Analog Monitor	AO-A3	<p>Outputs analog signal for monitoring drive output state (output freq., output current etc.).</p> <ul style="list-style-type: none"> Output resolution: 11 bit signed (1/2048) Output voltage: -10 to +10 Vdc (non-isolated) Terminals: 2 analog outputs
	Digital Output	DO-A3	<p>Outputs isolated type digital signal for monitoring drive run state (alarm signal, zero speed detection, etc.)</p> <ul style="list-style-type: none"> Terminals: 6 photocoupler outputs (48 V, 50 mA or less) 2 relay contact outputs (250 Vac, 1 A or less 30 Vdc, 1 A or less)
PG Speed Controller Card	Complimentary Type PG	PG-B3	<p>For control modes requiring a PG encoder for motor feedback.</p> <ul style="list-style-type: none"> Phase A, B, and Z pulse (3-phase) inputs (complementary type) Max. input frequency: 50 kHz Pulse monitor output: Open collector, 24 V, max. current 30 mA Power supply output for PG: 12 V, max. current 200 mA <p>Note: Not available in Advanced Open Loop Vector for PM.</p>
	Line Driver PG	PG-X3	<p>For control modes requiring a PG encoder for motor feedback or PM motor feedback.</p> <ul style="list-style-type: none"> Phase A, B, and Z pulse (differential pulse) inputs (RS-422) Max. input frequency: 300 kHz Pulse monitor output: RS-422 Power supply output for PG: 5 V or 12 V, max. current 200 mA

Configurations

Non-Regenerative System - 5P 575V/690V A1000 HHP-AC input with rectifier

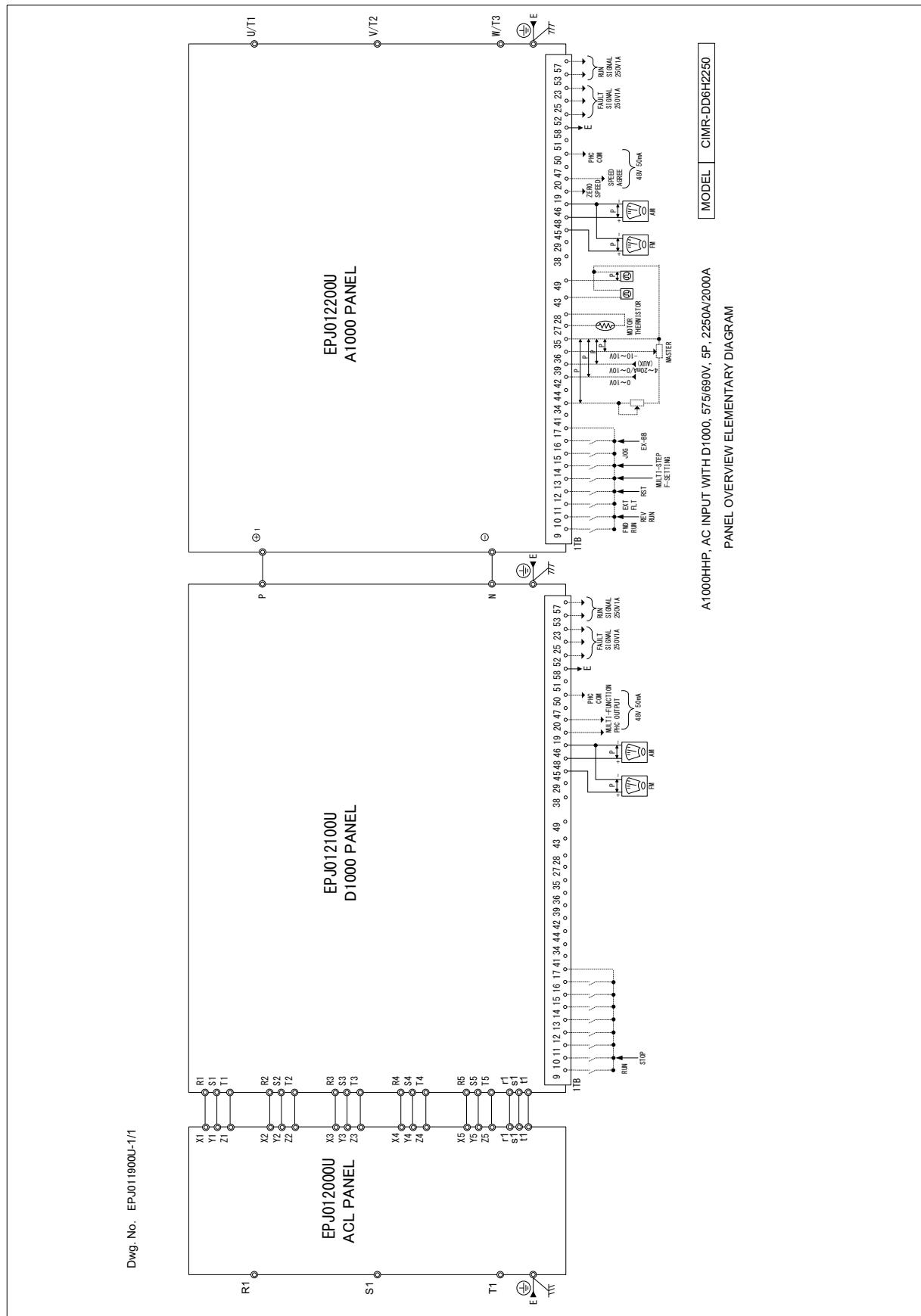


Non-Regenerative System - 5P 480V A1000 HHP-AC input with rectifier



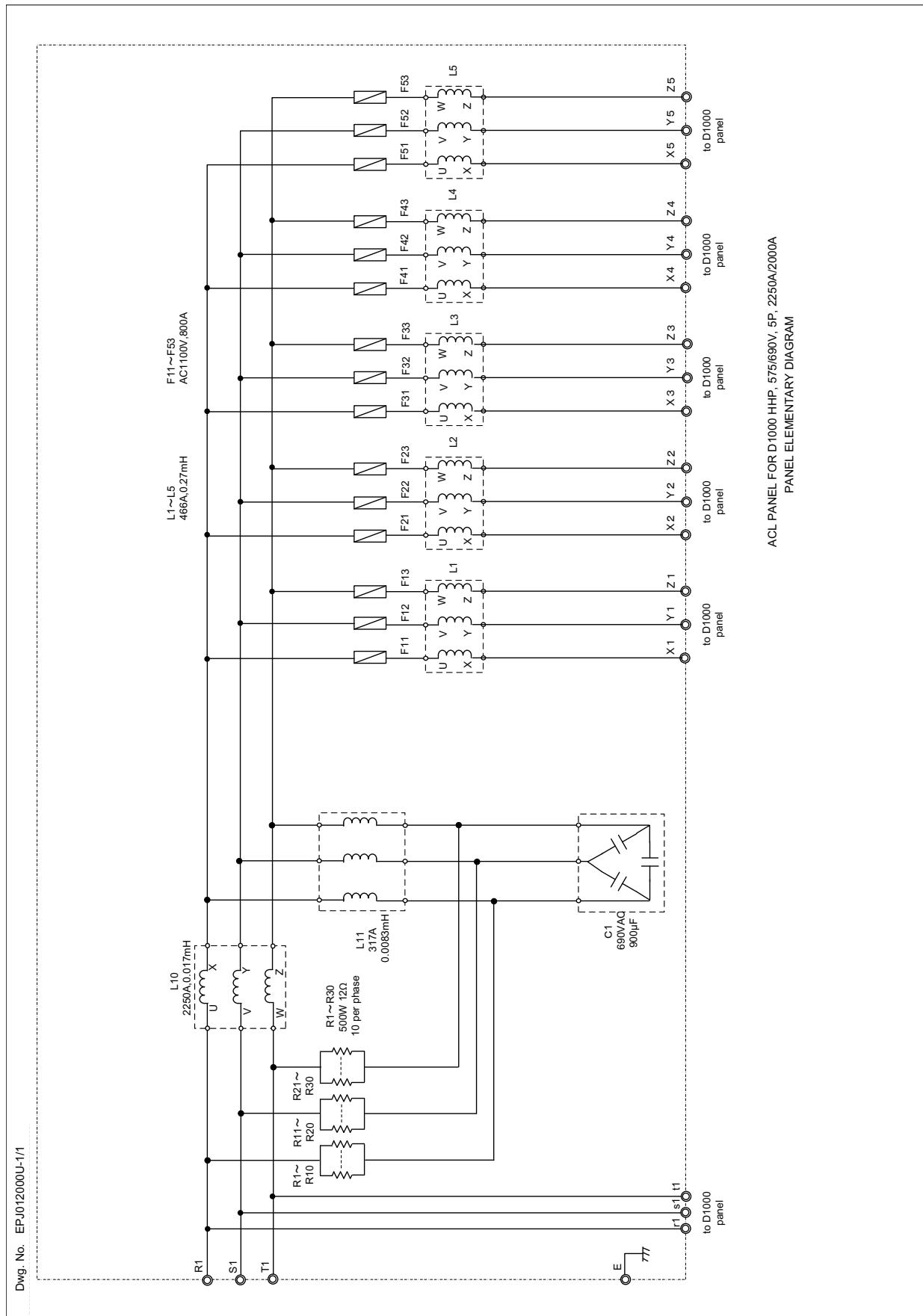
Regenerative System - 5P 575V/690V

Panel Overview



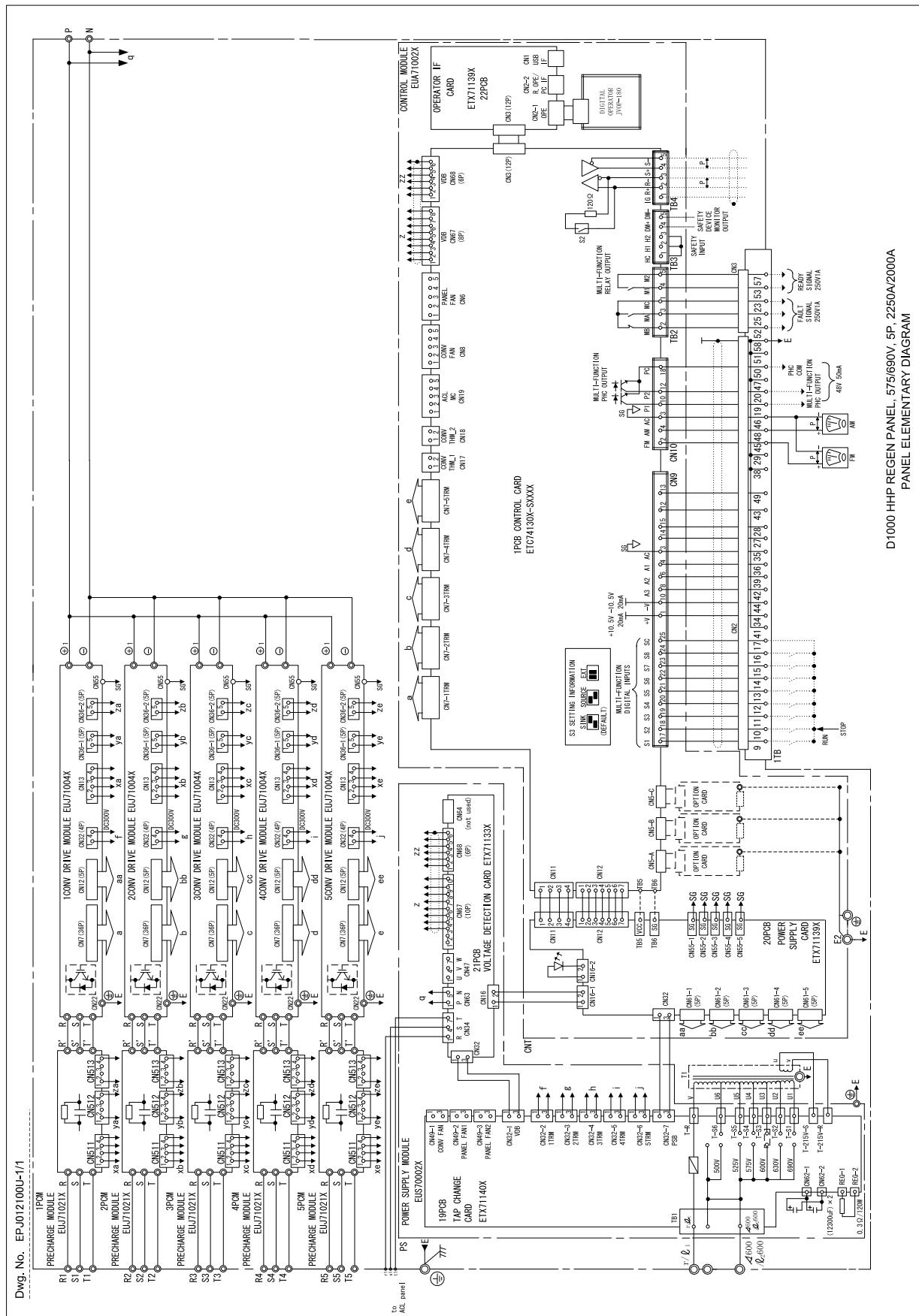
Regenerative System - 5P 575V/690V

ACL Panel Elementary Diagram



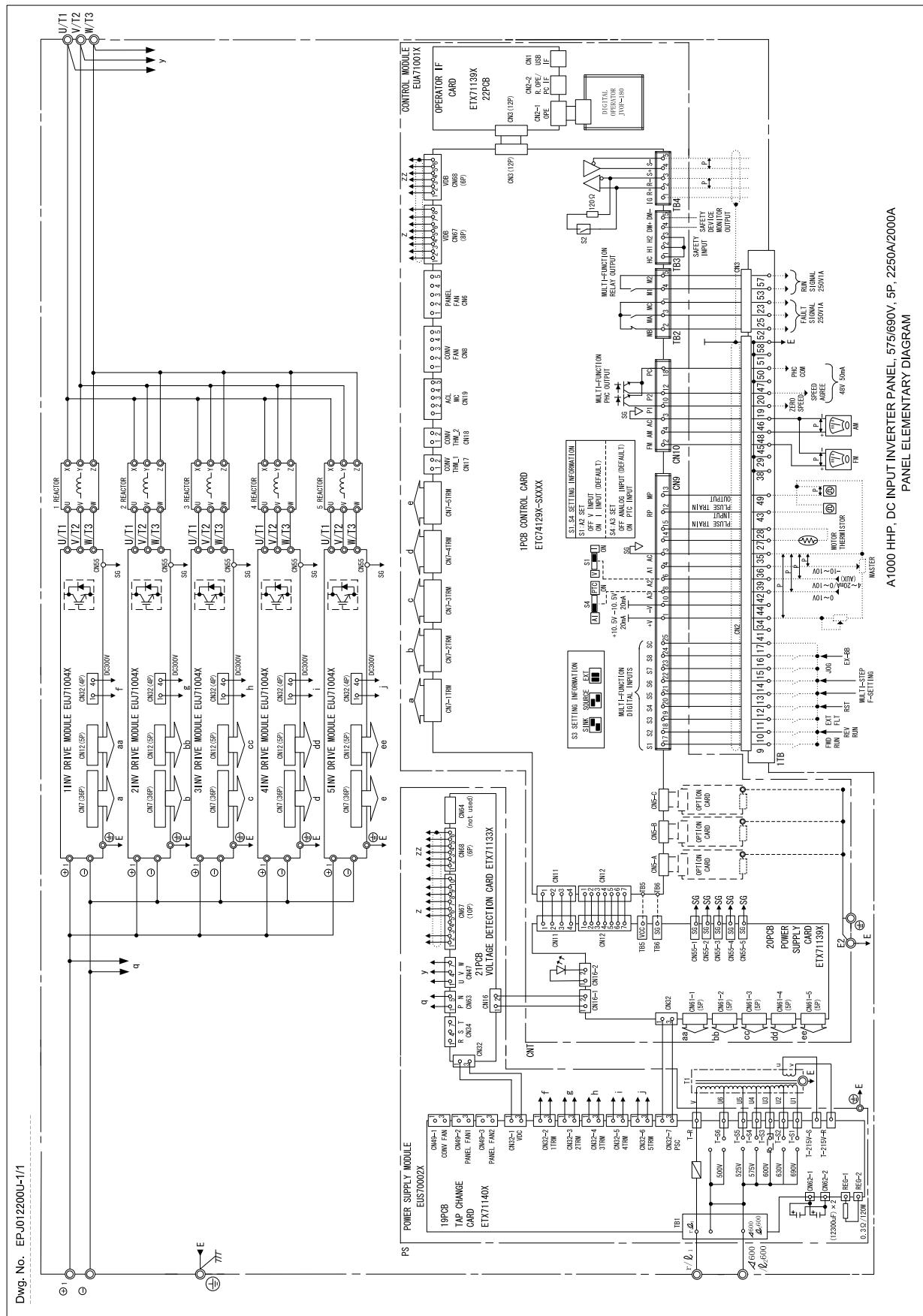
Regenerative System - 5P 575V/690V

A1000-HHP Regenerative Panel



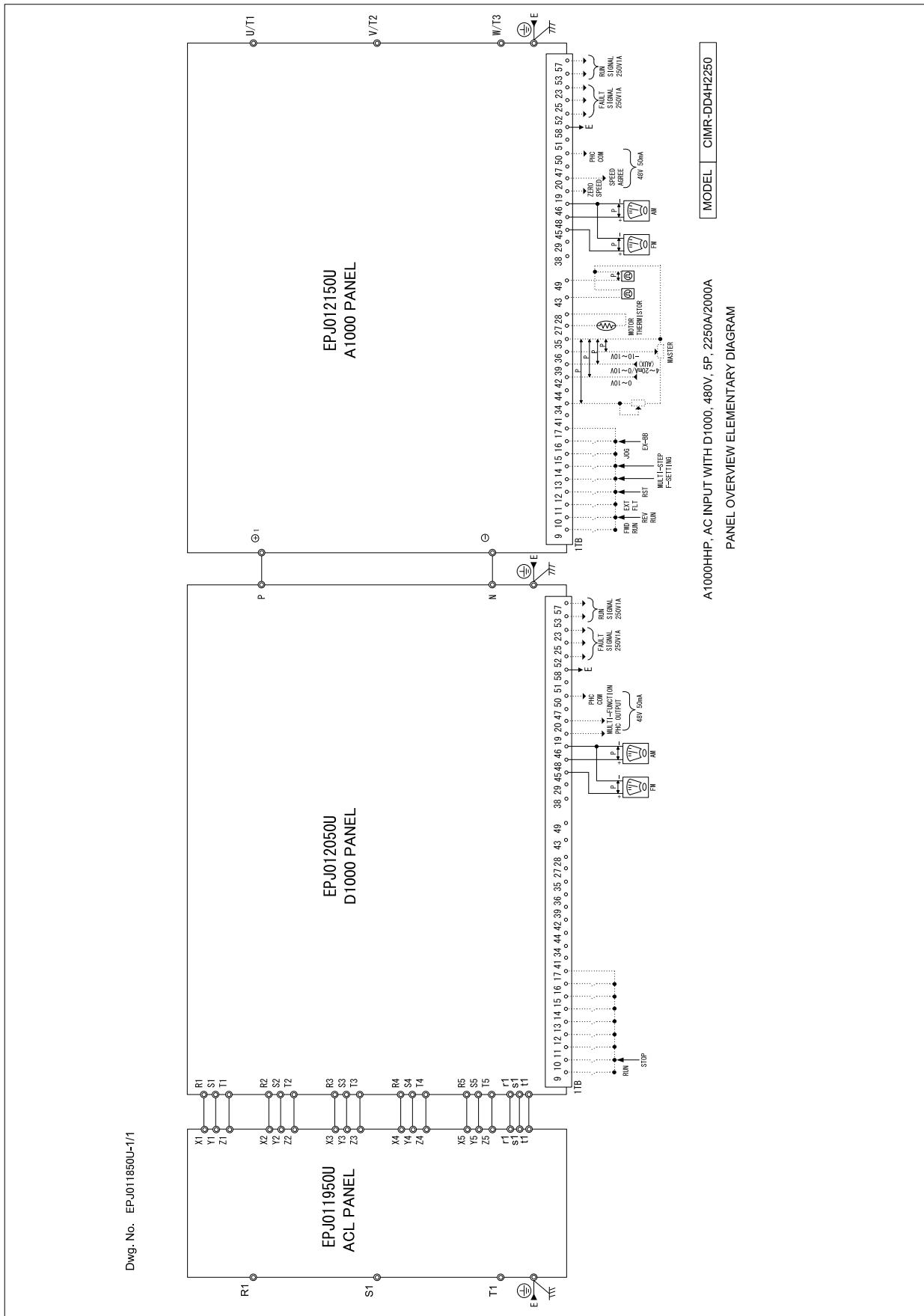
Regenerative System - 5P 575V/690V

A1000-HHP DC Input Inverter Panel



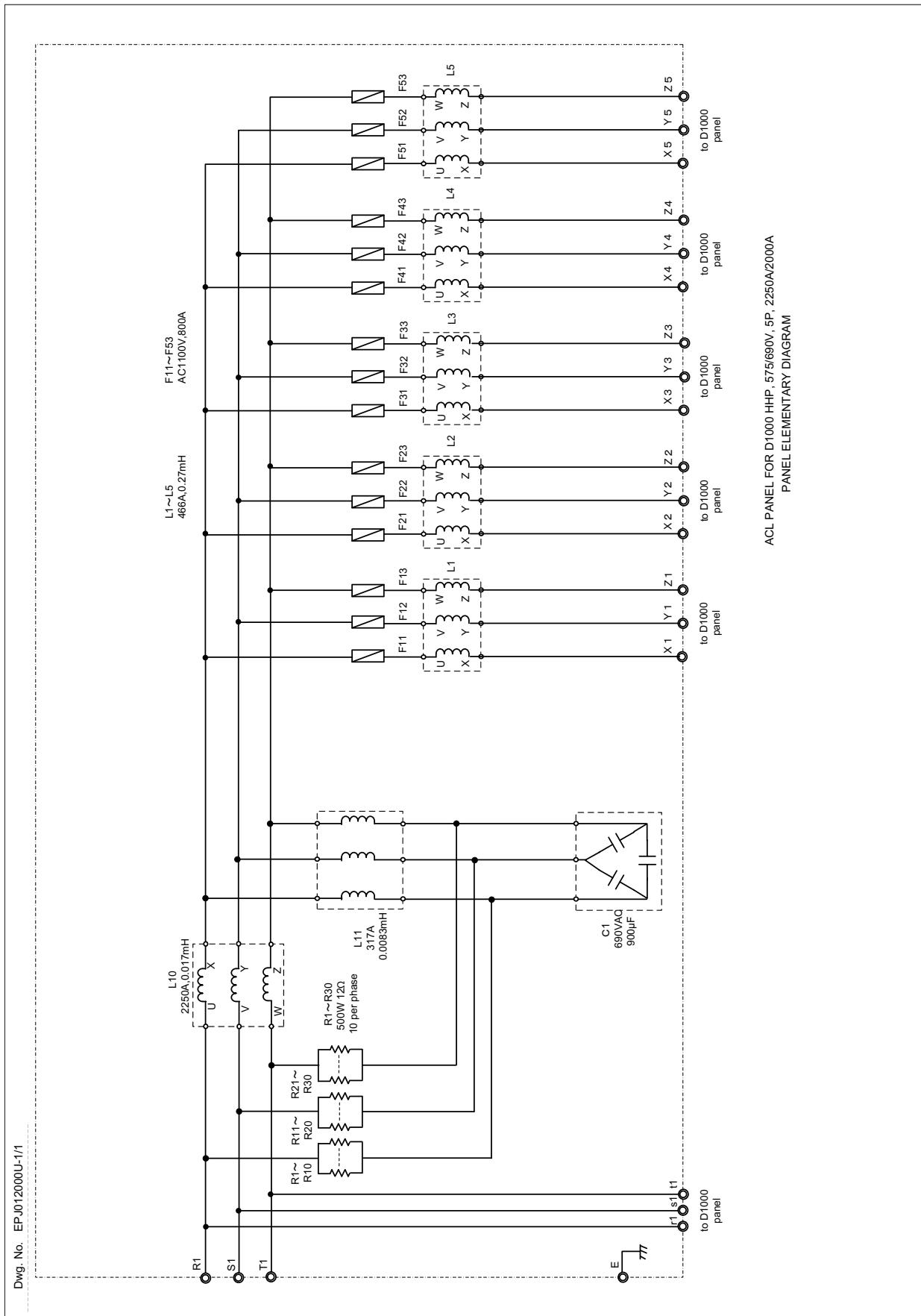
Regenerative System - 5P 480V

Panel Overview



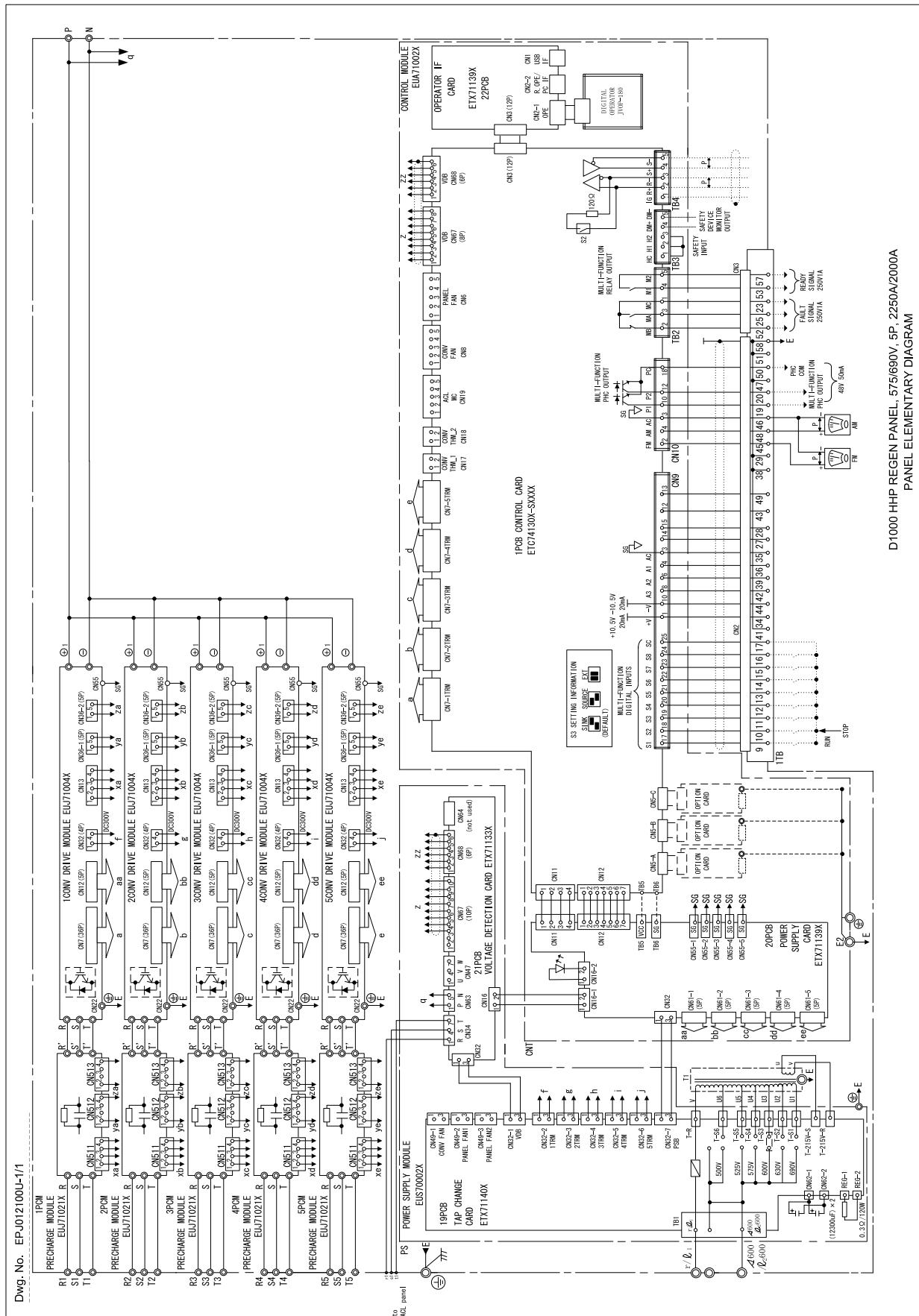
Regenerative System - 5P 480V

ACL Panel Elementary Diagram



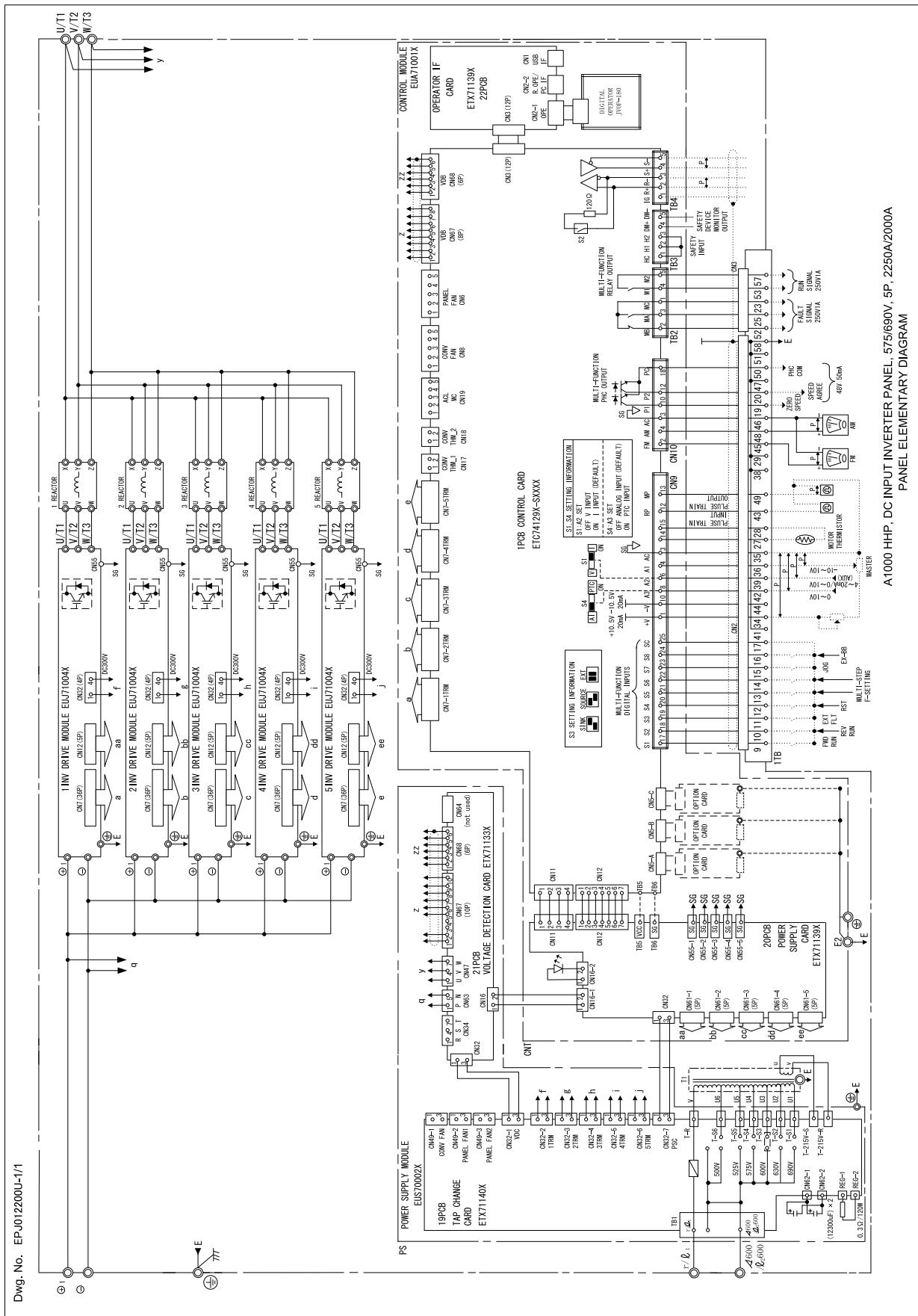
Regenerative System - 5P 480V

D1000-HHP Regenerative Panel



Regenerative System - 5P 480V

A1000-HHP DC Input Inverter Panel





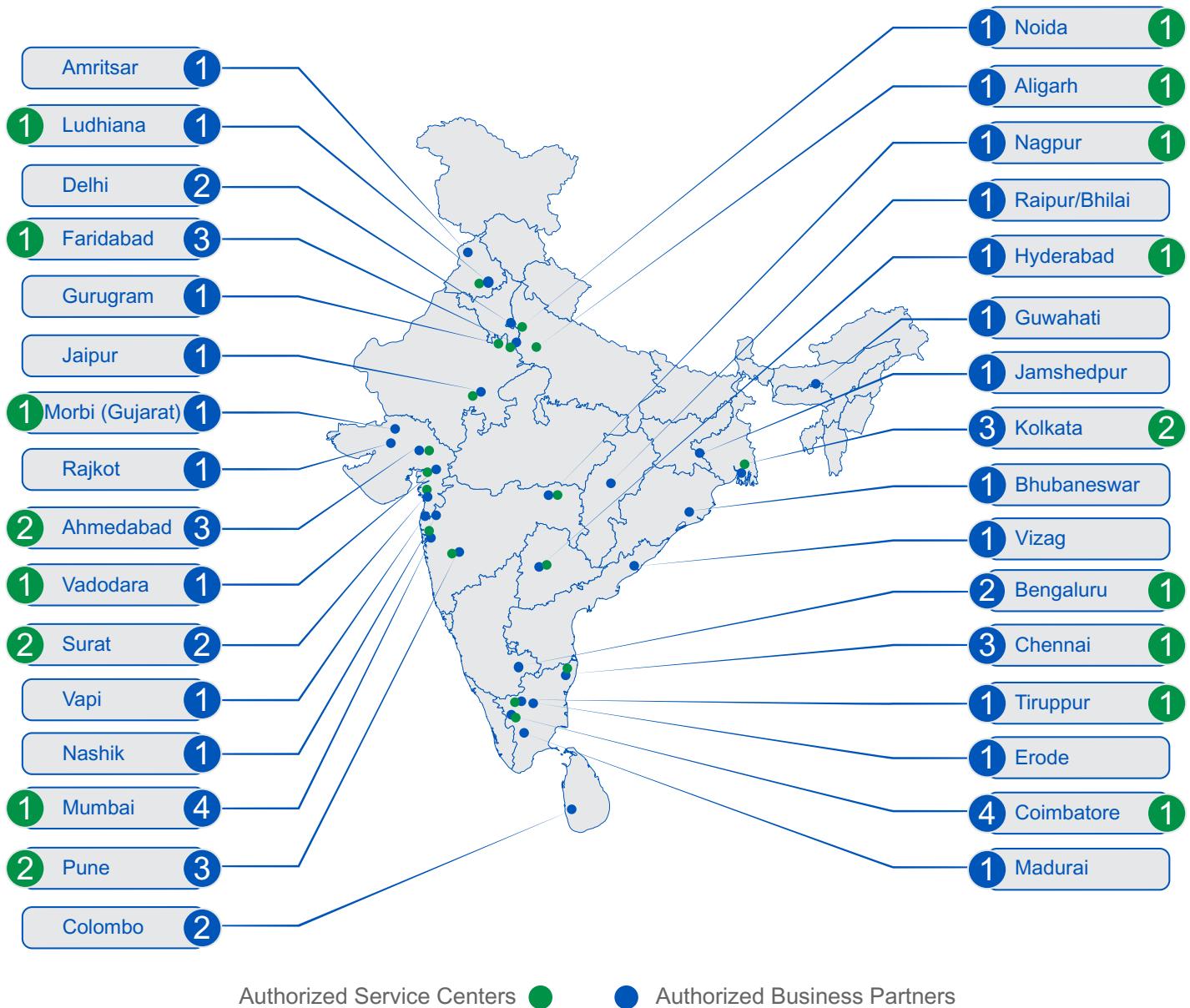
Production Line



Repair Facility



Application Center



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