

LV AC Drive N800-Series

The Best AC Drive for the Challenges of Tomorrow



Power Electronics

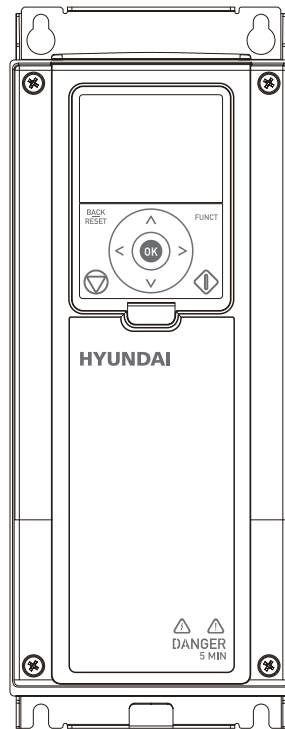
Power Performance User-Friendly Design High Torque Control Hyundai AC Drive N800

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AC Drive N800-Series

N800S: 1-Phase, 208 - 240 V, 0.37 - 2.2 kW
3-Phase, 208 - 240 V, 0.37 - 22 kW
3-Phase, 380 - 480 V, 0.37 - 132 kW

N800A: 3-Phase, 208 - 240 V, 0.37 - 75 kW
3-Phase, 380 - 500 V, 0.75 - 280 kW

Low Voltage AC Drive N800-Series

Hyundai Heavy Industries (HHI) N800-Series is part of HHI's low voltage drive family which offers a wide power range at various voltages to cover a variety of applications from pump, fan, conveyor and compressor applications through to demanding machinery and marine solutions.

To meet the varying requirements of its customers such as efficiency, accuracy and flexibility in your processes, HHI offers an advanced air-cooled low voltage drive for efficient motor control.



MR9



MR8



MR7



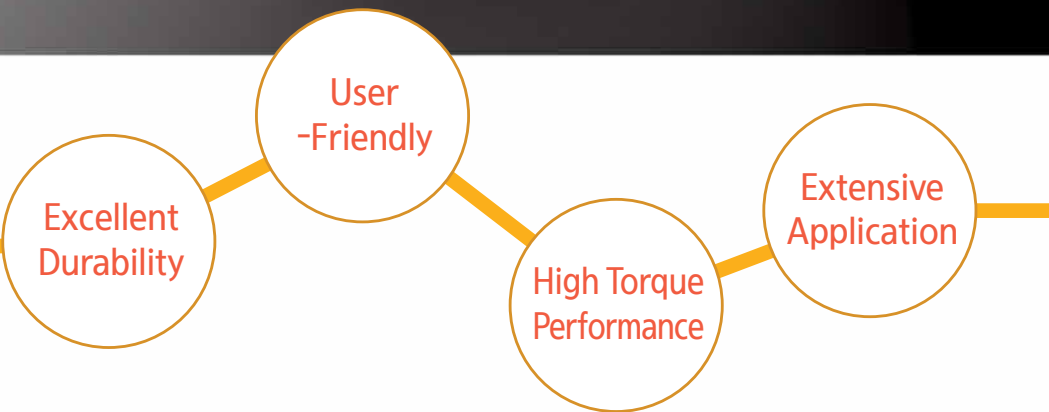
MR6



MR5



MR4



N800-Series Selection Guide

Index		Model	N800S	N800A	Remark
Capacity	1-ph	208 - 240 V	0.37 - 2.2 kW	-	Based on 150 % O.V
		208 - 240 V	0.37 - 22 kW	0.37 - 75 kW	
	3-ph	380 - 480 V	0.37 - 132 kW	-	
		380 - 500 V	-	0.75 - 280 kW	
Structure	Operator		Text	Graphic	
	IP54		△	○	
Built-in	DC Choke		△	●	
	EMC Filter		○	○	
	RFI Filter		-	○	
	Brake Chopper		△	△	
	Micro Thin Film Capacitors		△	●	
Control Function	Control	Parameter Read / Copy	△	●	
		Frequency Control U / F	●	●	
		Sensorless Vector (SLV)	●	●	
		Open Loop Torque Control	-	●	
	Application Wizard		-	●	
	Main Fan Control		△	●	
	Multipump Control		△	●	
	Fire Mode Operation		-	●	
	Energy Counter		-	●	
	Real Time Clock		-	○	
	Bulit-in Functionality		●	●	
	Bulit-in PLC		△	○	
	Communication	Built-in RS485	Modbus RTU	●	●
BACnet MSTP			△	●	
Metasys N2			△	●	
Built-in Ethernet		Modbus TCP	△	●	
		BACnet IP	△	●	
		Ethernet IP	-	○	S / W Option
		Profinet I/O	-	○	S / W Option
Communication Cards		Profibus-DP	○	○	
		Devicenet	○	○	
		CANopen	○	○	
	EtherCAT	○	○		
	LonWorks	-	○		
Functional Safety	STO (Safe Torque Off)		-	○	
	SS1 (Safe Stop1)		-	○	
	ATEX Thermistor Input		-	○	
PCTool	N800 HIMS		●	●	with downloader

※ ● Default ○ Option △ Depending on Frame - N/A

Please contact Hyundai Heavy Industries if closed-loop control is necessary.

Possibilities and Performance-N800S

HHI N800S AC drive comes packed with functionality and possibilities to bring any machine control to a completely new level. The compact size in combination with a wide power range is the base, but N800S's possibilities do not end there.

A built-in PLC functionality, which is one of the most flexible on the market, makes this product adapt to every task and bring cost savings to the user.

▪ Wide Power Range

- N800S is available in all common voltages in the range of 208 - 480 V with a wide power range up to 132 kW.
- Cost effective by implementing our harmonized product range and increased efficiency in the manufacturing processes.

▪ Cutting-Edge Performance

- Cutting cycle times and maximizing the control performance of the drive.
- Built-in RS485 interface offers a cost effective and simple serial control interface for the drive. (200 V Class MR7, 400 V Class MR6 - 9 have Ethernet as a standard)
- With optional modules, N800S can be connected to almost any fieldbus system including CANopen, Devicenet and Profibus-DP.

▪ Fast Installation and Set-up

- Easy access terminals, built-in DIN rail mounting and the MCA parameter copying tool which can clone settings without main power in the drive are all examples of features that help reduce start-up time.

▪ Built-in PLC Functionality Based on IEC 61131-3

- The built-in PLC functionality presents an opportunity to increase machine performance and save costs. The customer can build his own control logic in the drive and utilize unused I/O of the drive for performing other machine related tasks.
- Another unique feature of the N800S is that the parameter list can be freely modified, and application specific parameter sets and default settings can be created.

Typical Applications

- Pumps and Fans
- Conveyors
- Packaging, Processing and Washing Machines

Technical Highlights

- Wide Power Range Up to 132 kW
- High Performance and Functionality
- Full I/O + Option Board Support
- Fast Installation and Setup

Ratings and Dimensions



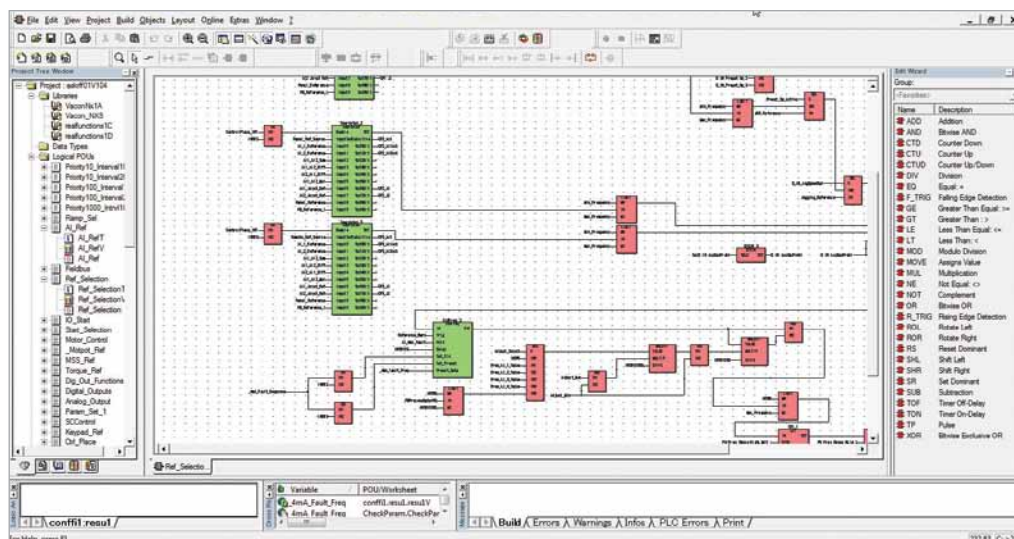
Supply Voltage	AC Drive Type	Power		Motor Current ¹⁾		Frame Size	Dimension	Weight [kg]
		kW	hp	I _N [A]	1.5 × I _N [A]		W x H x D [mm]	
208 - 240 V 1-Phase	N800S0020-1L-0002-2	0.37	0.5	2.4	3.6	MI1	66 x 160 x 99	0.55
	N800S0020-1L-0004-2	0.75	1	3.7	5.6	MI2	90 x 150 x 102	0.7
	N800S0020-1L-0007-2	1.5	2	7	10.5	MI2	90 x 150 x 102	0.7
	N800S0020-1L-0009-2	2.2	3	9.6	14.4	MI3	100 x 255 x 109	0.99
208 - 240 V 3-Phase	N800S0020-3L-0002-2	0.37	0.5	2.4	3.6	MI1	66 x 160 x 99	0.55
	N800S0020-3L-0004-2	0.75	1	3.7	5.6	MI2	90 x 150 x 102	0.7
	N800S0020-3L-0007-2	1.5	2	7	10.5	MI2	90 x 150 x 102	0.7
	N800S0020-3L-0011-2	2.2	3	11	16.5	MI3	100 x 255 x 109	0.99
	N800S0020-3L-0017-2	4	5	17.5	26.3	MI4	165 x 370 x 165	8
	N800S0020-3L-0025-2	5.5	7.5	25	37.5	MI4	165 x 370 x 165	8
	N800S0020-3L-0031-2	7.5	10	31	46.5	MI5	165 x 414 x 202	10
	N800S0020-3L-0038-2	11	15	38	57	MI5	165 x 414 x 202	10
	N800S0100-3L-0075-2	15	20	62	93	MR7	237 x 660 x 259	37.5
	N800S0100-3L-0088-2	18.5	25	75	112.5	MR7	237 x 660 x 259	37.5
	N800S0100-3L-0105-2	22	30	88	132	MR7	237 x 660 x 259	37.5
	380 - 480 V 3-Phase	N800S0020-3L-0001-4	0.37	0.5	1.3	2	MI1	66 x 160 x 99
N800S0020-3L-0003-4		0.75	1	2.4	3.6	MI1	66 x 160 x 99	0.55
N800S0020-3L-0005-4		1.5	2	4.3	6.5	MI2	90 x 150 x 102	0.7
N800S0020-3L-0006-4		2.2	3	5.6	8.4	MI2	90 x 150 x 102	0.7
N800S0020-3L-0009-4		4	6	9	13.5	MI3	100 x 255 x 109	0.99
N800S0020-3L-0012-4		5.5	7.5	12	18	MI3	100 x 255 x 109	0.99
N800S0020-3L-0016-4		7.5	10	16	24	MI4	165 x 370 x 165	8
N800S0020-3L-0023-4		11	15	23	34.5	MI4	165 x 370 x 165	8
N800S0020-3L-0031-4		15	20	31	46.5	MI5	165 x 414 x 202	10
N800S0020-3L-0038-4		18.5	25	38	57	MI5	165 x 414 x 202	10
N800S0100-3L-0061-5		22	30	46	69	MR6	195 x 557 x 229	20
N800S0100-3L-0072-5		30	40	61	91.5	MR7	237 x 660 x 259	37.5
N800S0100-3L-0087-5		37	50	72	108	MR7	237 x 660 x 259	37.5
N800S0100-3L-0105-5		45	60	87	130.5	MR7	237 x 660 x 259	37.5
N800S0100-3L-0140-5		55	75	105	157.5	MR8	290 x 794 x 343	62
N800S0100-3L-0170-5		75	100	140	210	MR8	290 x 794 x 343	62
N800S0100-3L-0205-5		90	125	170	255	MR8	290 x 794 x 343	62
N800S0100-3L-0261-5		110	150	205	307.5	MR9	180 x 970 x 365	97
N800S0100-3L-0310-5	132	200	251	376.5	MR9	180 x 970 x 365	97	

※ 1) Frame MR6 - 9 are available on 110 % overload capacity and have DC Choke as the standard.

Customizing the Software

■ N800S Programming

N800S's built-in PLC functionality and programming is in accordance with IEC 61131-3. The optional tool enables the user to modify the drive software by editing the existing application logic or by creating a completely new software. The parameter list and default settings are edited with a separate tool.



■ PC Interface and Parameter Copying

The MCA (Micro Communications Adapter) is a snap-on and intelligent copying unit for N800S products.

- Parameter copying without main power in the drive.
- Download settings directly to the MCA from PC without a drive.
- HW interface for PC connection to the drive.

I/O Configuration

Terminal	Description
1	+ 10 Vref Max. Load 10 mA
2	AI1 0 - 10 V
3	GND -
4	AI2 0 - 10 V / 0 (4) - 20 mA ¹⁾
5	GND -
6	24 Vout MAX. 50 mA / CP 100 mA
7	GND / DIC ¹⁾ -
8	DI1 0 - +30 V R _i = 12 kΩ
9	DI2 0 - +30 V R _i = 12 kΩ
10	DI3 0 - +30 V R _i = 12 kΩ
13	DOC Digital Output Common
14	DI4 0 - +30 V R _i = 12 kΩ
15	DI5 0 - +30 V R _i = 12 kΩ
16	DI6 0 - +30 V R _i = 12 kΩ
18	AO Analog Output (0 - 10 V / 0 (4) - 20 mA) ¹⁾
20	DO Open Collector, Max. Load 48 V / 50 mA
22	RO 13-CM Relay Output 1
23	RO 14-NO Relay Output 1
24	RO 22-NC Relay Output 2
25	RO 21-CM Relay Output 2
26	RO 24-NO Relay Output 2
A	A-RS485 Modbus RTU
B	B-RS485 Modbus RTU

※ 1) Selectable

Technical Data

Mains Connection	Input voltage U_{in}	208...240 V, -15 % ... +10 % 1-phase 208...240 V, -15 % ... +10 % 3-phase 380...480 V, -15 % ... +10 % 3-phase
	Input frequency	45...66 Hz
	Connection to mains	Once per minute or less (normal case)
Motors Connection	Output voltage	$0 \dots U_{in}$
	Output current	Continuous rated current I_N at rated ambient temperature overload $1.5 \times I_N$ max. 1 min / 10 min (for MI Frame) ¹⁾
	Starting Current / Torque	Current $2 \times I_N$ for 2 secs in every 20 sec period / Torque depends on motor
	Output frequency	0...320 Hz
	Frequency resolution	0.01 Hz
Control Characteristics	Control method	Frequency control U / f, Open loop sensorless vector control
	Switching frequency	1.5...16 kHz ; Factory default 4 kHz
	Braking torque	100 % $\times T_N$ with brake chopper in 3-phase version sizes MI2 - 5, MR6 30 % $\times T_N$ with DC-braking. Dynamic flux braking available in all types
Ambient Conditions	Ambient operating temperature	-10°C (no frost) ... +50°C: Rated loadability I_N (1L-0009-2, 3L-0007-2, 3L-0011-2 and with options ENC-IN01-MIx ambient max. +40°C)
	Storage temperature	-40°C ... +70°C
	Altitude	100 % load capacity (no derating) up to 1,000 m 1 % derating for each 100 m above 1,000 m: Max. 2,000 m
	Enclosure class	MI1-3: IP20, MI4-5: IP21, MR6-7: IP21, MR8-MR9: IP00
EMC	Immunity	Compliance with EN 61800-3 (2004)
	Emissions	208 - 240 V: EMC level C2: with an internal + EMC2 option 380 - 480 V: EMC level C2: with an internal + EMC2 option
Approvals	EN 61800, CE, UL cUL, TR-CU, IEC (Not all versions, see unit nameplate for more detailed approvals.)	

※ 1) Please refer to Page 18 for the rated current of MR Frame.

Options Boards

Factory Installed Options Code	Description
+EMC2	C2-Level EMC Filter (Includes +QPES)
+QPES	Cable Shield Grounding Kit
+QFLG	Flange Mounting Kit for M14 and M15
Separately Delivered Options Code	Description
ENC-SLOT-MC03-13	Option Board Mounting Kit MI1 - MI3
ENC-SLOT-MC03-45	Option Board Mounting Kit MI4 - MI5
ENC-IN01-Mix	NEMA 1 Kit MI1 - MI5. x = 1, 2, 3, 4, 5 (Include IP21 Cover for MI1 - MI3)
ADP-MCAA-Kit	Complete MCA + USB Cable Kit
N800-PAN-HMDR-MC03-3M	Complete Keypad Door Mounting Kit (3.0 m Cable)
N800-PAN-HMDR-MC03-6M	Complete Keypad Door Mounting Kit (6.0 m Cable)

※ The options above are only for Frame MI. Refer to Page 19 for options of Frame MR. (ENC-SLOT-MC03 is necessary for slot options.)



MCA Adapter



Option Board Mounting Kit



Keypad Door Mounting Kit



IP21 / NEMA1 Kit

Type Code Key ▶

N800S0020 - 1L - 0009 - 5 + OPTION CODES

Product - Input Phase - Current Rating - Voltage Rating + Options

Power Performance Beyond Your Imagination-N800A

HHI N800A AC drive is equipped with **smart new benefits from functional safety with Safe Torque Off to prevent the drive from generating torque on the motor shaft, Safe Stop1, and ATEX certified motor over-temperature protection.**

N800A also features a unique built-in Ethernet to make integration to plant automation easy and efficient via integrated Modbus TCP, Ethernet IP or Profinet I/O.

▪ One Drive, Extensive Applications

- Optimal solution to suit various process applications across a wide spectrum of industries.
- User can optimize N800A with a wide range of fieldbus options and features for motor and process control.

▪ Eco-Friendly

- DC link capacitors are made with unique plastic foil technology instead of electrolyte. (No limitations on storage without reforming)
- Our new N800A complies with key international standards and global requirements, including RoHS (lead free), EMC & Harmonics approvals.

▪ Various Options

- Several standard features such as built-in I/O with 3 option slots, integrated RS485 and Ethernet based fieldbus support, varnished boards and robust motor control features for reliability.
- IP54 / UL Type12 and flange (through hole) mounting.
- Frame sizes MR8 - MR10 are also available as compact IP00 for easy installation to cabinets or enclosures.



Applications

	Common Features	Benefits
N800A	· Compliance with global standards	· Global compatibility
	· Built-in Modbus TCP and Modbus RTU Profinet I/O or Ethernet IP as software option	· Most of what is needed is in-built · Easy integration with plant automation
	· Safe Torque Off, Safe Stop1 and ATEX	· Improved safety at work
	· EMC compliance with integrated RFI filter, Integrated DC Chokes	· No additional accessories required
	· Conformal coating	· High reliability in difficult environments, easy and cost effective installation
	· Compact IP54 / UL Type12 with same footprint as IP21 / UL Type1	
	· Flange mounting	
	· Side by side mounting for IP54 / UL Type12	· Reduces need for an external controller
	· Standard I/O + 3 free slots	
	· Fieldbus options, built-in PLC capability	· Fast investment payback, increase profits
· High efficiency > 97% + energy optimization, energy counter	· Easy monitoring of energy savings	
· Real time clock with calendar based functions	· Reduce noise levels	
· Optimized control of cooling fan		
Applications	Dedicated Features	Added Benefits
Pumps	· 2 PID controllers with sleep mode, slot fill, jockey pump, pump autoclean PM and induction motor support	· Demand based optimization of the process for accurate process control and energy saving · Easy selection for any motor · PM motor allows higher power density, less mechanics
Fans	· Flying start · Motor switch · 3 prohibit frequency ranges · PM and induction motor support	· Save time during process operation and maintenance · Fan lifetime increased due to reduced mechanical stress · Easy selection for any motor · PM motor allows higher power density = energy savings
Compressors	· IP21 / UL Type1, IP54 / UL Type12 · Flange (through hole) mounting · IP00 for MR8 - 10	· Suitable for wide installation needs · Easy to integrate into the machine, saving space and cost of integration and cooling
Conveyors	· Load drooping · Identification run without disconnecting the motor from the load · Mechanical brake · Torque boost	· Avoid stress on mechanics · Easy commissioning

Typical Applications

Process Industry

- Conveyors
- Pumps & Fans
- Chippers, Debarking Drums, Sawmills

Mining & Minerals

- Conveyors
- Pumps & Fans

Industrial HVAC / Semiconductor Industry

- Compressors
- Pumps & Fans

Marine

- Cargo pumps, Compressors
- Steering gear

Chemical, Oil & Gas

- Compressors
- Pumps & Fans

Cement Auxiliary Drives

- Conveyors
- Pumps & Fans

Water

- Distribution
- Desalination
- Treatment
- Pumps, Compressors, Conveyors

Smart Integration to Your Plant Automation

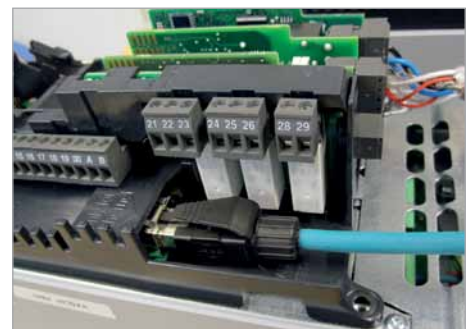
▪ Fieldbus

- N800A is easily integrated with your plant's automation system using built-in Modbus RTU (RS485) or Modbus TCP (Ethernet).
- **Software options:** Ethernet IP, Profinet I/O
- **Click in fieldbus options:** Profibus-DP, Devicenet, LonWorks, CANopen



▪ Built-In Ethernet

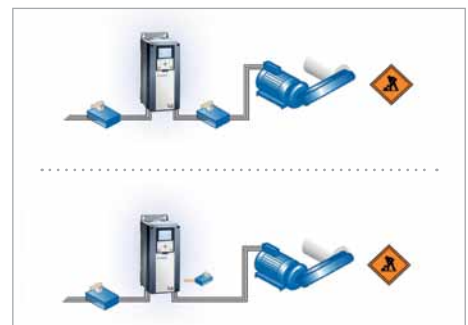
- Ethernet is the preferred protocol in industries today. That makes the N800A an economical choice.
- No additional options or gateways are needed for the communication with process automation due to its unique built-in Ethernet for local or remote wireless monitoring.



Protective Features

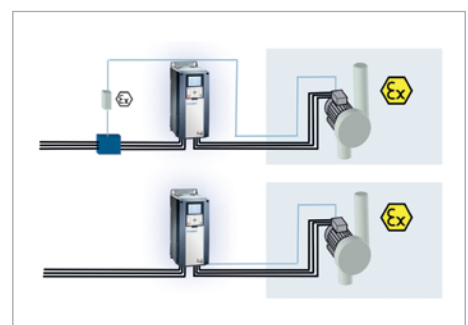
▪ Safe Torque Off, Safe Stop1

- Safe Torque Off (STO) prevents the drive from generating torque on the motor shaft and prevents unintentional start-ups with stop category0, EN 60204-1.
- Safe Stop1 (SS1) initiates motor deceleration and initiates the STO function after an application specific time delay with stop category1, EN 60204-1.



▪ ATEX Certified Thermistor Input

- Certified and compliant with the European ATEX directive, 94 / 9 / EC, the integrated thermistor input is specially designed for the temperature supervision of motors that are placed in potentially explosive gas, vapor. If over-heating is detected, the drive immediately stops feeding energy to the motor.



Easier Commissioning

▪ User-Friendly Keypad

N800A's keypad has ensured that the user interface is simple and intuitive to use due to keypad's well-structured menu system that allows for fast commissioning and trouble-free operation.

- Graphical keypad with multiple language support
- 9 signals can be monitored at the same time on a single multi-monitor page and is configurable to either 9,6 or 4 signals
- 3 color LED status indication on the control unit:
blinking green = ready, **green** = run, **red** = fault
- Trend display for two signals at the same time



▪ Quick Start Wizards

Quick Start 8 Wizards ensures easy set up application. Easy diagnostic with help in plain text is provided for each parameter, signal and fault.

- Startup Wizard - For fast setup of basic pump or fan applications
- PID Mini-Wizard - For easy commissioning of internal PID Controller
- Multi-Pump Wizard - For easy commissioning of Multi-Pump system
- Fire Mode Wizard - For easy commissioning of Fire Mode function



▪ Easy Installation

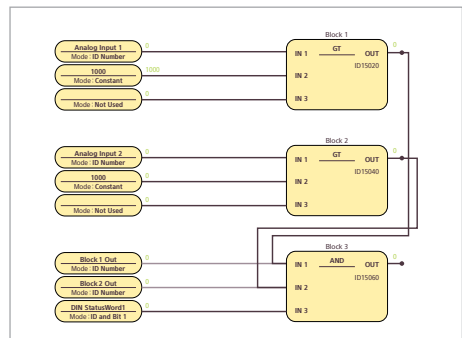
- Both IP21 / UL Type1 and IP54 / UL Type12 units with the same footprint.
- Compact IP54 / UL Type12 units can be installed side by side and require no additional space between them.
- Frame size MR8 - 10 are available as IP00 for cabinet installation.
- Flange mounting option enables through-hole mounting in the enclosure with the heat sink remaining on the outside of the enclosure.



▪ Built-in PLC Functionality

N800A comes equipped with a built-in PLC functionality that enables the drive to adapt to almost any function requiring I/O and control logic.

Configurations can be copied using PC tool as part of the normal parameter list.



Optimize Your Drive Your Way with N800A Software Tools

■ PLC Functionality

Machine builders or OEMs can achieve a high level of machine performance by optimizing the application with our new N800A programming software tools which feature a built-in PLC functionality based on IEC 61131-3.

■ Easier Commissioning

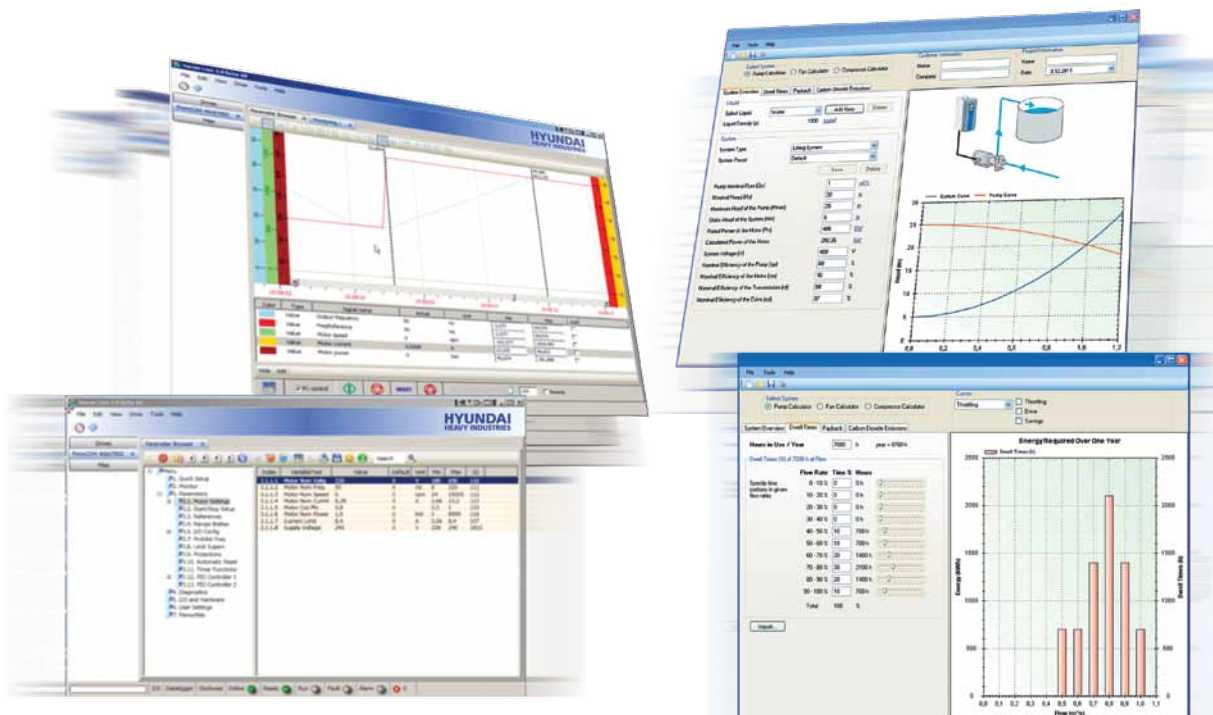
A commissioning PC tool which communicates directly with the N800A via Ethernet or through a USB-to-RS485 interface for easy installation, commissioning and maintenance.

■ Energy Calculator¹⁾

Calculating your energy savings in kWh when you implement N800A to the pumps and fans in your processes. While displaying savings in your own currency, it will also estimate the short payback time of N800A purchases as well as reductions in carbon dioxide emissions.

■ Harmonics Calculator¹⁾

Estimating the harmonics and power quality of your operations quickly using our harmonics tool. It illustrates the total harmonic effect of your existing or intended drives in your supply networks, so that you can plan for an effective solution in compliance with local harmonic standards.



※ 1) Please contact Hyundai Heavy Industries for these options.

Ratings and Dimensions

Mains Voltage 208 – 240 V, 50 / 60 Hz, 3-Phase

AC Drive Type	Loadability				Max Current I_S	Motor Shaft Power				Frame Size ²⁾	Dimension W x H x D [mm]	Weight [kg]
	Low ¹⁾		High ¹⁾			230 V Supply		230 V Supply				
	Continuous Current I_L [A]	10 % Overload Current [A]	Continuous Current I_H [A]	50 % Overload Current [A]		10 % Overload 40 °C [kW]	50 % Overload 50 °C [kW]	10 % Overload 104 °F [hp]	50 % Overload 122 °F [hp]			
N800A0100-3L-0003-2	3.7	4.1	2.6	3.9	5.2	0.55	0.37	0.75	0.5	MR4 IP21	128 x 328 x 190	6
N800A0100-3L-0004-2	4.8	5.3	3.7	5.6	7.4	0.75	0.55	1	0.75			
N800A0100-3L-0007-2	6.6	7.3	4.8	7.2	9.6	1.1	0.75	1.5	1			
N800A0100-3L-0008-2	8	8.8	6.6	9.9	13.2	1.5	1.1	2	1.5			
N800A0100-3L-0011-2	11	12.1	8	12	16	2.2	1.5	3	2			
N800A0100-3L-0012-2	12.5	13.8	9.6	14.4	19.2	3	2.2	4	3			
N800A0100-3L-0018-2	18	19.8	12.5	18.8	25	4	3	5	4	MR5 IP21	144 x 419 x 214	10
N800A0100-3L-0024-2	24	26.4	18	27	36	5.5	4	7.5	5			
N800A0100-3L-0031-2	31	34.1	25	37.5	46	7.5	5.5	10	7.5			
N800A0100-3L-0048-2	48	52.8	31	46.5	62	11	7.5	15	10	MR6 IP21	195 x 557 x 229	20
N800A0100-3L-0062-2	62	68.2	48	72	96	15	11	20	15			
N800A0100-3L-0075-2	75	82.5	62	93	124	18.5	15	25	20	MR7 IP21	237 x 660 x 259	37.5
N800A0100-3L-0088-2	88	96.8	75	112.5	150	22	18.5	30	25			
N800A0100-3L-0105-2	105	115.5	88	132	176	30	22	40	30			
N800A0100-3L-0140-2	140	154	114	171	210	37	30	50	40	MR8 ³⁾ IP21	290 x 966 x 343	66
N800A0100-3L-0170-2	170	187	140	210	280	45	37	60	50			
N800A0100-3L-0205-2	205	225.5	170	255	340	55	45	75	60			
N800A0100-3L-0261-2	261	287.1	211	316.5	410	75	55	100	75	MR9 ³⁾ IP21	480 x 1,150 x 365	108
N800A0100-3L-0310-2	310	341	251	376.5	502	90	75	125	100			
N800A0100-3L-0140-2	140	154	114	171	210	37	30	50	40	MR8 IP00	290 x 794 x 343	62
N800A0100-3L-0170-2	170	187	140	210	280	45	37	60	50			
N800A0100-3L-0205-2	205	225.5	170	255	340	55	45	75	60			
N800A0100-3L-0261-2	261	287.1	211	316.5	410	75	55	100	75	MR9 IP00	480 x 970 x 365	97
N800A0100-3L-0310-2	310	341	251	376.5	502	90	75	125	100			

※ All models have DC Choke as a standard.

¹⁾ For N800A, overload is defined as follows: High: 1.5 x I_H (1 min / 10 min) @ 50°C; Low: 1.1 x I_L (1 min / 10 min) @ 40°C; I_S for 2 sec.

²⁾ IP21 size is the same as IP54 one.

³⁾ Option

Mains Voltage 308 – 500 V, 50 / 60 Hz, 3-Phase

AC Drive Type	Loadability				Max Current I _S	Motor Shaft Power				Frame Size ²⁾	Dimension W x H x D [mm]	Weight [kg]
	Low ¹⁾		High ¹⁾			400 V Supply		480 V Supply				
	Continuous Current I _L [A]	10 % Overload Current [A]	Continuous Current I _H [A]	50 % Overload Current [A]		10 % Overload 40 °C [kW]	50 % Overload 50 °C [kW]	10 % Overload 104 °F [hp]	50 % Overload 122 °F [hp]			
N800A0100-3L-0003-5	3.4	3.7	2.6	3.9	5.2	1.1	0.75	1.5	1	MR4 IP21	128 x 328 x 190	6
N800A0100-3L-0004-5	4.8	5.3	3.4	5.1	6.8	1.5	1.1	2	1.5			
N800A0100-3L-0005-5	5.6	6.2	4.3	6.5	8.6	2.2	1.5	3	2			
N800A0100-3L-0008-5	8	8.8	5.6	8.4	11.2	3	2.2	4	3			
N800A0100-3L-0009-5	9.6	10.6	8	12	16	4	3	5	4			
N800A0100-3L-0012-5	12	13.2	9.6	14.4	19.2	5.5	4	7.5	5			
N800A0100-3L-0016-5	16	17.6	12	18	24	7.5	5.5	10	7.5	MR5 IP21	144 x 419 x 214	10
N800A0100-3L-0023-5	23	25.3	16	24	32	11	7.5	15	10			
N800A0100-3L-0031-5	31	34.1	23	34.5	46	15	11	20	15			
N800A0100-3L-0038-5	38	41.8	31	46.5	62	18.5	15	25	20	MR6 IP21	195 x 557 x 229	20
N800A0100-3L-0046-5	46	50.6	38	57	76	22	18.5	30	25			
N800A0100-3L-0061-5	61	67.1	46	69	92	30	22	40	30			
N800A0100-3L-0072-5	72	79.2	61	91.5	122	37	30	50	40	MR7 IP21	237 x 660 x 259	37.5
N800A0100-3L-0087-5	87	95.7	72	108	144	45	37	60	50			
N800A0100-3L-0105-5	105	115.5	87	130.5	174	55	45	75	60			
N800A0100-3L-0140-5	140	154	105	157.5	210	75	55	100	75	MR8 ³⁾ IP21	290 x 966 x 343	66
N800A0100-3L-0170-5	170	187	140	210	280	90	75	125	100			
N800A0100-3L-0205-5	205	225.5	170	255	340	110	90	150	125			
N800A0100-3L-0261-5	261	287.1	205	307.5	410	132	110	200	150	MR9 ³⁾ IP21	480 x 1,150 x 365	108
N800A0100-3L-0310-5	310	341	251	376.5	502	160	132	250	200			
N800A0100-3L-0140-5	140	154	105	157.5	210	75	55	100	75			
N800A0100-3L-0170-5	170	187	140	210	280	90	75	125	100	MR8 IP00	290 x 794 x 343	62
N800A0100-3L-0205-5	205	225.5	170	255	340	110	90	150	125			
N800A0100-3L-0261-5	261	287.1	205	307.5	410	132	110	200	150			
N800A0100-3L-0310-5	310	341	251	376.5	502	160	132	250	200	MR9 IP00	480 x 970 x 365	97
N800A0100-3L-0385-5	385	424	310	450	540	200	160	300	250			
N800A0100-3L-0460-5	460	506	385	578	693	250	200	375	300			
N800A0100-3L-0590-5	590	649	520	780	936	315	280	475	375	MR10 ⁴⁾ IP00	506 x 980 x 525	205

※ All models have DC Choke as a standard.

1) For N800A, overload is defined as follows: High: 1.5 x I_H (1 min / 10 min) @ 50°C; Low: 1.1 x I_L (1 min / 10 min) @ 40°C; I_S for 2 sec.

2) IP21 size is the same as IP54 one.

3) Option

4) Please reconfirm the electrical date of MR10.

Technical Data

Mains Connection	Input voltage U_{in}	3-phase 208...240 V; 3-phase 380...500 V; -10 % ... +10 %
	Input frequency	47 - 65 Hz
	Connection to mains	Once per minute or less
	Starting delay	4 sec (MR4 - MR6); 6 sec (MR7 - MR10);
Motor Connection	Output voltage	0- U_{in}
	Continuous output current	I_L : Ambient temperature up to 40°C (104°F) overload 1.1 x I_L (1 min / 10 min)
		I_H : Ambient temperature up to 50°C (122°F) overload 1.5 x I_H (1 min / 10 min)
	Output frequency	0...320 Hz (Standard)
Frequency resolution	0.01 Hz	
Control Characteristics	Control method	Frequency Control U/F, Sensorless Vector (SLV), Open loop Torque Control
	Switching frequency	1.5...10 kHz; Automatic switching frequency reduction in case of overheating
	Frequency reference	Resolution 0.01 Hz
	Analog input	Resolution 0.1 % (10-bit)
	Field weakening point	8...320 Hz
	Acceleration time	0.1...3,000 sec
Deceleration time	0.1...3,000 sec	
Ambient Conditions	Ambient operating temperature	I_L : -10°C (-14°F) (no frost)...+ 40°C (104°F) I_H : -10°C (-14°F) (no frost)...+ 50°C (122°F)
	Storage temperature	-40°C (-40°F) ...+70°C (158°F)
	Relative humidity	0 to 95 % RH, non-condensing, non-corrosive
	Air quality: EN / IEC 60068-2-60	· Chemical vapors · Mechanical particles
	Altitude	EN / IEC 60721-3-3, unit in operation, class 3C2 EN / IEC 60721-3-3, unit in operation, class 3S2
		100 % load capacity (no derating) up to 1,000 m (3,280 ft) 1 % derating for each 100 m (3,28 ft) above 1,000 m (3,28 ft) Max altitudes: 4,000 m (13,123 ft) (TN and IT systems) 240 V relay voltage up to 3,000 m (9,842 ft) from 3,000 m...4,000 m (9,842 ft...13,123 ft) 120 V relay voltage can be used
		Vibration
	Shock	EN / IEC 61800-5-1 EN / IEC 60068-2-27
	Enclosure class	MR4 - 7: IP21 / UL TYPE1 standard / MR8 - 10: IP00 standard MR4 - 9: IP54 / UL TYPE12 option, MR8 - 9: IP21 option
	EMC ¹⁾	Immunity
Emissions		EN 61800-3 category C2 / C4
Emissions	Average sound pressure level in dB (A) (1 m from the drive)	MR4: 45...56 MR5: 57...65 MR6: 63...72 MR7: 43...73 MR8: 58...73 MR9: 54...75 MR10: 70...75 Sound pressure depends on the cooling fans speed which is controlled in accordance with the drive temperature
Safety and Approvals	-	EN / IEC 61800-5-1, EN / IEC 61800-3, EN / IEC 61800-3-12, UL 508C, CE, UL, cUL, TR-CU (see unit nameplate for more detailed approvals)
Functional Safety ¹⁾	STO	EN / IEC 61800-5-2 Safe Torque Off (STO) SIL3, EN ISO 13849-1 PL "e" category 3, EN 62061: SILCL3, IEC 61508: SIL3
	SS1	EN / IEC 61800-5-2 Safe Stop1 (SS1) SIL2, EN ISO 13849-1 PL "d" category 3, EN 62061: SILCL2, IEC 61508: SIL2
	ATEX Thermistor Input	94 / 9 / EC, CE 0537 Ex 11 (2) GD

※ 1) Option

Type Code Key ▶

N800A0100 - 3L - 0009 - 5 + OPTION CODES

Product	-	Input Phase	-	Current Rating	-	Voltage Rating	+	Options
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I/O Configurations & Options

Basic I/O Board		
Terminal		Signal
1	+10V _{ref}	Reference output
2	AI1+	Analog input, 0 - 10 V / 0 (4) - 20 mA ¹⁾
3	AI1-	Analog input common (current)
4	AI2+	Analog input, 0 - 10 V / 0 (4) - 20 mA ¹⁾
5	AI2-	Analog input common (current)
6	24V _{out}	24Vaux, voltage
7	GND	I/O ground
8	DI1	Digital input 1
9	DI2	Digital input 2
10	DI3	Digital input 3
11	CM	Common A for DI1 - DI6
12	24V _{out}	24Vaux, voltage
13	GND	I/O ground
14	DI4	Digital input 4
15	DI5	Digital input 5
16	DI6	Digital input 6
17	CM	Common A for DI1 - DI6
18	AO1+	Analog signal (+output), 0- 10 V / 0 (4)- 20 mA ¹⁾
19	AO- / GND	Analog output common
30	-24V _{in}	24 V auxiliary input voltage
A	RS485	Differential receiver / transmitter
B	RS485	Differential receiver / transmitter
21	RO1 / 1 NC	Relay output 1
22	RO1 / 2 CM	
23	RO1 / 3 NO	
24	RO2 / 1 NC	Relay output 2
25	RO2 / 2 CM	
26	RO2 / 3 NO	
32	RO3 / 1 CM	Relay output 3
33	RO3 / 2 NO	

Factory Installed Options Code	
Option Code	Description
+IP54	IP54 / UL Type12 (MR4 - MR9)
+IP21	IP21 (MR8 - MR9)
+SRBT ²⁾	Real-time clock battery
+FBIE ²⁾	Ethernet IP, Profinet I/O (software option onboard)
+QFLG	Flange mounting (MR4 - MR7, for MR8 and MR9 with IP00)
+EMC2	EMC-level C2 for general industry
+EMC4 ²⁾	EMC-level C4 for IT networks
+DBIN	Dynamic braking (for MR7 - MR9)

Seperately Delivered	
Option Code	Description
PAN-HMDR-MK01-3M	Door mounting kit with 3M cable (CAB-RJ45P-3M)
PAN-HMDR-MK01-6M	Door mounting kit with 3M cable (CAB-RJ45P-6M)
PAN-HMPA-MK01	Panel adapter, IP54 (dummy keypad)
CAB-RJ45P-3M	3M RJ45 cable door mounting kit
CAB-RJ45P-6M	6M RJ45 cable door mounting kit
CAB-USB / RS485	PC cable for software tools (USB to RS485, 3M)
OPT-BT-MC04-5 ²⁾	Battery package for (5 pcs) for real time clock
OPT-BT-MC04-20 ²⁾	Battery package for (20 pcs) for real time clock
RFI-0012-5-IP54	RFI Filter for MR4 (W x H x D: 128 x 395 x 61.5 mm)
RFI-0031-5-IP54	RFI Filter for MR5 (W x H x D: 144 x 490 x 61.5 mm)
RFI-0061-5-IP54	RFI Filter for MR6 (W x H x D: 195 x 625 x 90 mm)
RFI-0105-5-IP54	RFI Filter for MR6 (W x H x D: 230 x 745 x 100 mm)

Seperately Delivered Options Code (for option slot)		Option Slot		
Option Boards (all boards are varnished)		C	D	E
OPT-B1-V	6 x DI / DO, each I/O can be individually programmable as input or output	●	●	●
OPT-B2-V	2 x Relay output + Thermistor	●	●	●
OPT-B4-V	1 x AI, 2 x AO (Isolated)	●	●	●
OPT-B5-V	3 x Relay output	●	●	●
OPT-B9-V	1 x RO, 5 x DI (42-240 VAC)	●	●	●
OPT-BF-V	1 x AO, 1 x DO, 1 x RO	●	●	●
OPT-BH-V	3 x Temperature measurement (support for PT100, PT1000, NI1000, KTY84-130, KTY84-150, KTY84-131 sensors)	●	●	●
OPT-BJ-V ²⁾	Safe Torque-Off, ATEX Thermistor input, Safe Stop1	-	-	●
OPT-E3-V	Profibus-DP V1 (Screw connector)	-	●	●
OPT-E5-V	Profibus-DP V1 (D9 connector)	-	●	●
OPT-E6-V	CANopen	-	●	●
OPT-E7-V	Devicenet	-	●	●
OPT-EC-V	EtherCAT	-	●	●
OPT-C4-V	LonkWorks	-	●	●

※ 1) Selectable
 2) Not available in N800S



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