

Top 100  
Global  
Innovator  
for 10 years

# **H100+ (Plus)** **GAME CHANGER**

Featuring new fan & pump control functions!



3-phase 240V 1HP~25HP  
3-phase 480V 1HP~800HP

**LS** ELECTRIC

# H100+



## Evolution of Pumping Controls

LS ELECTRIC's H100+ is superior drive that operates variable speed control of AC motor pumps. Minimal setup and no extra equipment are required to achieve outstanding pump control and operations utilizing H100+ drive features.

## ECO-friendly and Energy Saving

The H100+ is an eco-friendly and energy-saving solution designed for fan and pump systems. Up to 40% of energy savings can be achieved by optimizing speed control. The H100+ includes newly integrated pump control and protection features for reliable operation.



- **UL** - Standard UL 61800-5-1
- **cUL** - CSA Standard C22.2 No. 14
- **CE** - Standard EN 61800-3, CEN61800-5-1, EN50178
- **Korean** - Standard KN 61800-3
- **Marine** - ABS, DNV/GL, LR, KR, NK, BV, RINA, CCS, RS
- **OSHPD Seismic Certification**
- **Plenum Rated**
- **ROHS compliant**

Up to 70 % of fresh water is used for irrigation purposes. H100+ is used for careful distribution and conservation which is crucial for sustainable supplies.

**H100+ provides irrigation solutions that meet customer needs:**

- Smooth operation and protection from equipment damage
- Even flow and pressure to each nozzle along a pivot
- Protection against dry-running and cavitation
- Safe operation with unstable power supplies







## Voltage Line-up Extension!!!

- 230V class 22 to 90kW (30 to 125HP) (Coming soon)
- 575V class 5.5 to 90kW (7.5 to 125HP) (Coming soon)

### Newly added features of H100+

- New pump control functions
- User-friendly key control
- Improved PID performance

#### Existing Features for fans & pumps of H100

Soft Fill Operation
Dec Valve Ramp
Multi Motor Control
Scheduling (Real Time Clock)
Flow Compensation
Power-on Resume
Sleep Boost
Lubrication Control
Damper Control
Detection of Pipe Broken
Level Detection
Pre-Heat
Under Load Protection
Pump Clean
Load Tuning
Fire Mode



#### Added New features for pumps of H100+

No-Flow Control
Flow Monitoring
PI Auxiliary (Suction/Level/Vacuum) Control
Over-Cycling Protection
Differential Level Detection
Low/High Feedback Detection
Setpoint Timeout
Current Limit
Thrust Bearing Control
Pump Minimum Speed
Improved Hand-Off-Auto Keypad
Power-On Run for Keypad Command
Lead-Lag
Enhanced PID Performance
Simplify PID Group
Various Sleep Mode & Method
Selectable Wake-Up Method (Absolute, Deviation)
Wake-Up Disable Mode
Backspin Timer
Single Phase Protection
Dual Rating



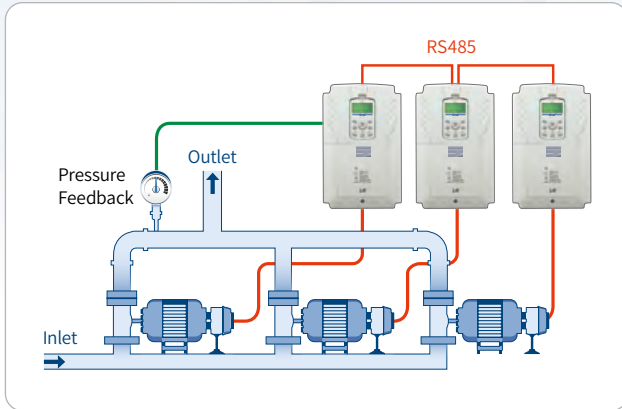
※ Deleted "external PID", "Payback Counter", "M2 group" from H100



## Added Pump Control Features

The minimal setup and no extra equipment are required to achieve outstanding pump control and operations by using the H100+'s pump driven features.

### Lead-lag



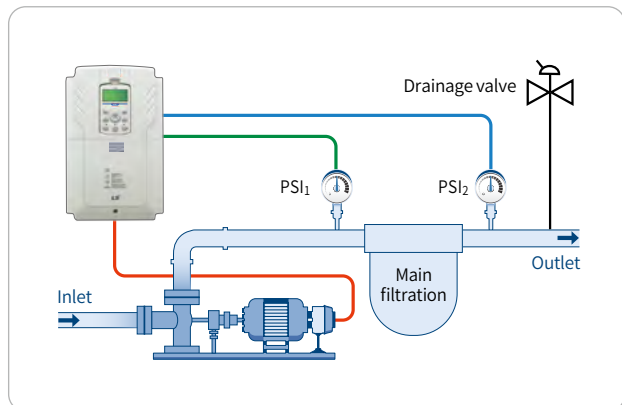
Lead-lag is a fully redundant pump system where multiple drives and pumps are coupled and used to operate at the optimum efficiency.

The system can be fully customized per the application needs. If the master drive fails the next drive would take over to maintain pressure.

Additionally, pump operation sequence can be set based on the operation time, FIFO, or FILO. H100+'s cutting edge load-sharing feature ensures smooth alternation staging and destaging of pumps, and most importantly makes the most cost-effective operation possible.

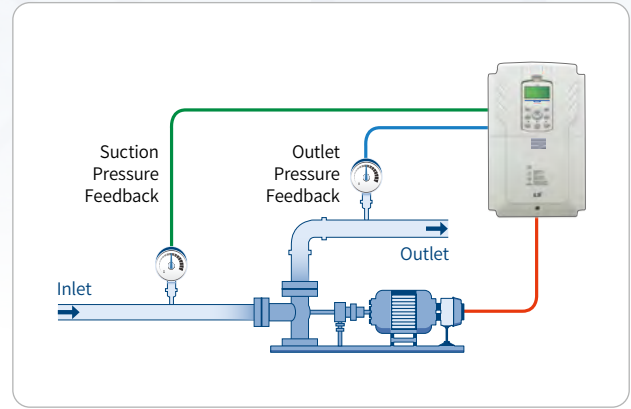
※Up to 8 VFD/Motors can be set for lead-lag control

### Differential Level Detection



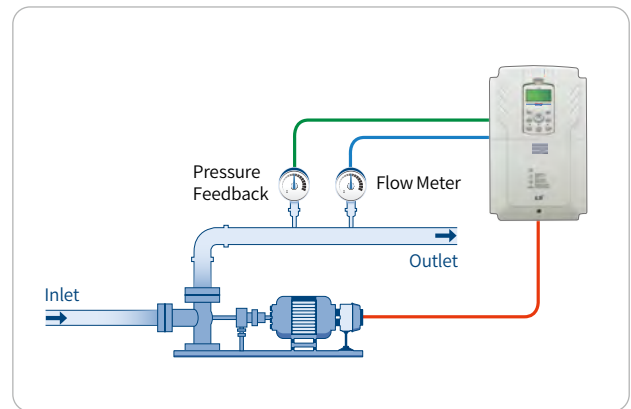
The difference between two feedbacks is monitored and measured for backflush operation for filter clog detection.

### PI Auxiliary Control



H100+ can be used as a standalone PI with a transducer or in parallel when using a secondary pressure transducer. This function allows the H100+ to monitor suction pressure at the inlet of the pump and control the output frequency accordingly.

### Flow Monitoring



Useful application for pumping systems which regulate and limit how much water can be pumped out rivers, stream, and aquifers.

- Display flow rate
- Trigger High/Low flow rate trips, warnings, and outputs.
- Accumulation Counter PID control by Flow feedback



## Pump Protection Features

### No-flow control

By controlling the output frequency and monitoring the change of the feedback value simultaneously, H100+ can detect no flow condition. No-flow conditions can be caused by closed off valves or restrictions, also known as deadhead. When no-flow is detected, H100+ puts pump into sleep mode protecting the pump and pipeline from damage that may occur by operating in such condition.

### Over-cycle Protection

Cycling refers to when the VFD switches from the normal operation of Auto mode to the Sleep mode. By counting and controlling the number of the cycle, H100+ can prevent pumps from cycling too frequently.

### Low/High Feedback Detection

H100+ detects Low/High feedback level based on the configured parameter value and generates warning, trip, or digital output by monitoring feedback values continuously.

### Setpoint Timeout

A blockage of the impeller, pump over-cycling, a broken pipe condition, or other restrictions could sometimes cause the feedback value deviates undesirably from the setpoint. H100+ continuously monitors the setpoint and feedback values to provide warning or trip when the difference between them is greater than configured parameter level and time.

### Current Limit

H100+ monitors the current level and reduces the output speed when the motor current increases to overload condition to prevent tripping, while maintaining the output frequency above the minimum speed.



## PID Control

- Improved PID performance (fast & precise)
- Easy setup with the simplified parameter group
- Various sleep & wake-up modes
- Supplementary features for PID operation



## Intuitive and User Friendly

H100+ commissioning and start-ups are easy and intuitive due to the user friendly keypad.

- Enhanced hand-off-auto keypad
- Simplified PID group added
- HMI solutions tailored to your pump & fan application



## Application Adaptability

- Dual rating operation : Designed to be used for heavy and normal duty applications.
- UL Tested and Approved for use on Single-Phase Power



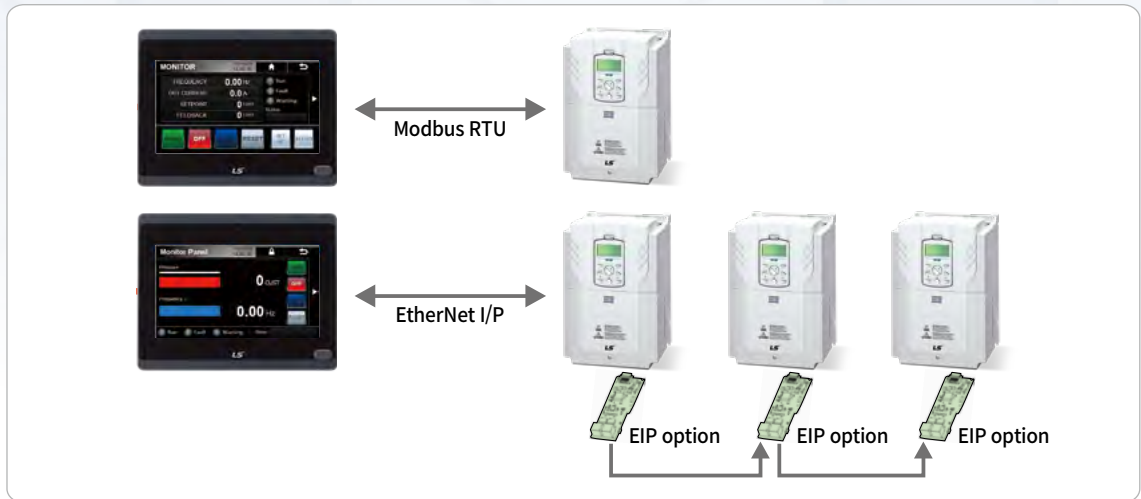
## Features for HVAC

- SCCR 100KA
- Metasys N2, BACnet MS/TP is embedded as standard
- BACnet I/P option can be added
- Plenum Rated
- OSHPD Seismic design



## Enhanced Monitoring and Programming with HMI

Pump controlling interface embedded in HMI for easy & remote control and Hand-Off-Auto operation also available through HMI.



※ EtherNet I/P communication has to be used with H100+ to monitor and control via HMI in lead-lag operation.

### Features included:

- Hand-off-auto operation features
- Parameter settings
- Trend monitoring
- Wizard
- Parameter read/write
- Timer function
- Trip log
- Multi VFD control
- Parameter Lock/Password



### eXP2 Series (Standard)

- Fully compatible with prior eXP generation models
- Improved project downloading speed, screen switching speed, booting time, and graphic rendering
- Enhanced product reliability (LCD backlight lifespan, Non battery type NVRAM)
- Variety of interfaces and functions including FTP, PDF Reader, etc.

### Effective and Cost-efficient Control and Monitoring Solution

Standard	10.2" [25.9Cm]	7" [17.7Cm]	5.6" [14.2Cm]	4.3" [10.9Cm]
 Serial I/F (RS-232C)	 <b>eXP2-100</b>	 <b>eXP2-070</b>	 <b>eXP2-050</b>	 <b>eXP2-040</b>
 Serial I/F (RS-422/485)				
 Serial I/F (RS-485)				
 USB I/F				
 Ethernet I/F				
 Micro SD Card I/F	 TFT 16.7M Colors WSVGA(1024 X 600)	 TFT 16.7M Colors WVGA(800x480)	 TFT 262,144 Colors VGA(680x480)	 TFT 16.7M Colors VGA(480x272)

※ Pre-built program can be provided for **eXP2-040 (4.3")** and **eXP2-070 (7")**.

※ Contact LS Electric America for consultation.



# Model & Type

Motor Rating	Horse Power	3-Phase 200V	3-Phase 400V
		Description	Description
0.75 kW	1 HP	INV,LSLV0008H100-2CONN(PLUS)	INV,LSLV0008H100-4COFN(PLUS)
1.5 kW	2 HP	INV,LSLV0015H100-2CONN(PLUS)	INV,LSLV0015H100-4COFN(PLUS)
2.2 kW	3 HP	INV,LSLV0022H100-2CONN(PLUS)	INV,LSLV0022H100-4COFN(PLUS)
3.7 kW	5 HP	INV,LSLV0037H100-2CONN(PLUS)	INV,LSLV0037H100-4COFN(PLUS)
5.5 kW	7.5 HP	INV,LSLV0055H100-2CONN(PLUS)	INV,LSLV0055H100-4COFN(PLUS)
7.5 kW	10 HP	INV,LSLV0075H100-2CONN(PLUS)	INV,LSLV0075H100-4COFN(PLUS)
11 kW	15 HP	INV,LSLV0110H100-2CONN(PLUS)	INV,LSLV0110H100-4COFN(PLUS)
15 kW	20 HP	INV,LSLV0150H100-2CONN(PLUS)	INV,LSLV0150H100-4COFN(PLUS)
18.5 kW	25 HP	INV,LSLV0185H100-2CONN(PLUS)	INV,LSLV0185H100-4COFN(PLUS)
22 kW	30 HP		INV,LSLV0220H100-4COFN(PLUS)
30 kW	40 HP		INV,LSLV0300H100-4COFN(PLUS)
37 kW	50 HP		INV,LSLV0370H100-4COFD(PLUS)
			INV,LSLV0370H100-4COND(PLUS)
45 kW	60 HP		INV,LSLV0450H100-4COFD(PLUS)
			INV,LSLV0450H100-4COND(PLUS)
55 kW	75 HP		INV,LSLV0550H100-4COFD(PLUS)
			INV,LSLV0550H100-4COND(PLUS)
75 kW	100 HP		INV,LSLV0750H100-4COFD(PLUS)
90 kW	125 HP		INV,LSLV0900H100-4COFD(PLUS)
110 kW	150 HP		INV,LSLV1100H100-4COFD(PLUS)
132 kW	200 HP		INV,LSLV1320H100-4COFD(PLUS)
160 kW	250 HP		INV,LSLV1600H100-4COFD(PLUS)
185 kW	300 HP		INV,LSLV1850H100-4COFD(PLUS)
220 kW	350 HP		INV,LSLV2200H100-4COFD(PLUS)
250 kW	400 HP		INV,LSLV2500H100-4COFD(PLUS)
315 kW	500 HP		INV,LSLV3150H100-4COFD(PLUS)
355 kW	550 HP		INV,LSLV3550H100-4COFD(PLUS)
400 kW	650 HP		INV,LSLV4000H100-4COFD(PLUS)
500 kW	800 HP		INV,LSLV5000H100-4COFD(PLUS)



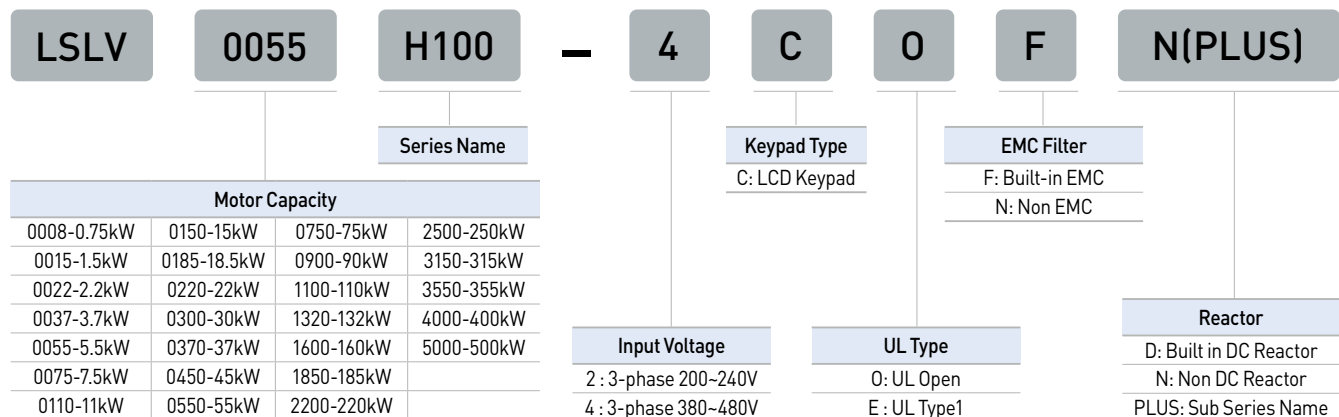
**① LSLV0055H100-2CONN(PLUS) IE2(1.5%)**

**② INPUT** 200-240 V 3 Phase 50/60 Hz  
ND : 23.7A

**③ OUTPUT** 0-Input V 3 Phase 0.01~400 Hz  
ND :22A  
8.4kVA (D)  
Ser. No 12030100001  
Inspected by K.D.Hong  
MSIP-REM-LSR-XXXXXXX

**LS ELECTRIC** MADE IN KOREA

1. Model name
2. Power source specification
3. Output specification



# Input & Output Specification

## 230V Class 1 – 25HP (0.75 – 18.5kW)

Model H100 XXXX-2 (PLUS)			0008	0015	0022	0037	0055	0075	0110	0150	0185	
Applied Motor	Heavy Duty (150% OL)	HP	0.5	1	2	3	5	7.5	10	15	20	
		kW	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	
	Normal Duty (120% OL)	HP	1	2	3	5	7.5	10	15	20	25	
		kW	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	
Rated Capacity (kVA)			1.9	3	4.5	6.1	8.4	11.4	16	21.3	26.3	
Rated Output	Rated Current(A)	3-Phase input	HD	2.5	5	8	11	17	24	32	46	60
			ND	5	8	12	16	22	30	42	56	69
	Single Phase input (ND)		2.9	4.4	6.4	8.4	11	16	23	30	37	
Output Frequency			0-400 Hz									
Output Voltage (V)			3-Phase 200-240 V									
Rated Input	Working Voltage (V)	3-Phase	3-Phase 200-240 VAC (-15%~+10%)									
		1-Phase	1-Phase 240 VAC (-5%~+10%)									
	Input Frequency	3-Phase	50-60 Hz (±5%)									
		1-Phase	60 Hz (±5%)									
Rated Current (A)		HD	2.4	4.9	8.4	11.8	18.5	26.2	35.4	51.4	67.6	
		ND	4.9	8.4	12.9	17.5	23.7	32.7	46.4	62.3	77.2	
Weight (lb)			7.3	7.3	7.3	7.3	7.3	7.3	7.5	10.1	10.6	

## 230V Class 30 – 125HP (22 – 90kW) release date TBD

Model H100 XXXX-2 (PLUS)			0220	0300	0370	0450	0550	0750	0900	
Applied Motor	Heavy Duty (150% OL)	HP	25	30	40	50	60	75	100	
		kW	18.5	22	30	37	45	55	75	
	Normal Duty (30 – 60HP : 120% OL, 75 – 125HP: 110%)	HP	30	40	50	60	75	100	125	
		kW	22	30	37	45	55	75	90	
Rated Capacity (kVA)			31.2	41.9	54.1	64.4	85.0	100.6	123.8	
Rated Output	Rated Current(A)	3-Phase input	HD	68	81	106	136	169	195	255
			ND	82	110	142	169	223	264	325
	Single Phase input (ND)		45	58	78	92	122	145	178	
Output Frequency			0-400 Hz							
Output Voltage (V)			3-Phase 200-240 V							
Rated Input	Working Voltage (V)	3-Phase	3-Phase 200-240 VAC (-15%~+10%)							
		1-Phase	1-Phase 240 VAC (-5%~+10%)							
	Input Frequency	3-Phase	50-60 Hz (±5%)							
		1-Phase	60 Hz (±5%)							
Rated Current (A)		HD	62.1	74.4	97.9	128.0	160.0	185.7	245.7	
		ND	74.8	101.0	131.2	159.0	211.1	251.4	313.2	
Weight (lb)			55.8	72.5	86.4	90.6	118.2	121.9	159.2	



### 460V Class 1 – 30HP (0.75 – 22kW)

Model H100 XXXX-4 (PLUS)			0008	0015	0022	0037	0055	0075	0110	0150	0185	0220	
Applied Motor	Heavy Duty (150% OL)	HP	0.5	1	2	3	5	7.5	10	15	20	25	
		kW	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	
	Normal Duty (120% OL)	HP	1	2	3	5	7.5	10	15	20	25	30	
		kW	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	
Rated Capacity (kVA)			1.9	3	4.5	6.1	9.1	12.2	18.3	23	29	34.3	
Rated Output	Rated Current(A)	3-Phase input	HD	1.3	2.5	4	5.5	8	12	15	22	28	35
			ND	2.5	4	6	8	12	16	24	30	38	45
	Single Phase input (ND)		1.6	2.4	3.5	4.6	6.8	9.2	14	17	22	26	
Output Frequency			0–400 Hz										
Output Voltage (V)			3-Phase 380–480 V										
Rated Input	Working Voltage (V)	3-Phase	3-Phase 380–480 VAC (-15%–+10%)										
		1-Phase	1-Phase 480 VAC (-5%–+10%)										
	Input Frequency	3-Phase	50–60 Hz (±5%)										
		1-Phase	60 Hz (±5%)										
Rated Current (A)			HD	1.3	2.4	4.2	5.9	8.7	13.1	16.6	24.6	31.5	39.4
			ND	2.4	4.2	6.5	8.7	12.2	17.5	26.5	33.4	42.5	50.7
Weight (lb)			7.3	7.3	7.3	7.3	7.3	7.3	7.5	10.1	10.6	16.5	

### 460V Class 40 – 125HP (30 – 90kW)

Model H100 XXXX-4 (PLUS)			0300	0370	0450	0550	0750	0900	
Applied Motor	Heavy Duty (150% OL)	HP	30	40	50	60	75	100	
		kW	22	30	37	45	55	75	
	Normal Duty (30 – 60HP : 120% OL, 75 – 125HP: 110%)	HP	40	50	60	75	100	125	
		kW	30	37	45	55	75	90	
Rated Capacity (kVA)			46.5	57.1	69.4	82	108.2	128.8	
Rated Output	Rated Current(A)	3-Phase input	HD	41	55	67	81	106	136
			ND	61	75	91	107	142	169
	Single Phase input (ND)		36	39	47	55	73	86	
Output Frequency			0–400 Hz						
Output Voltage (V)			3-Phase 380–480 V						
Rated Input	Working Voltage (V)	3-Phase	3-Phase 380–480 VAC (-15%–+10%)						
		1-Phase	1-Phase 480 VAC (-5%–+10%)						
	Input Frequency	3-Phase	50–60 Hz (±5%)						
		1-Phase	60 Hz (±5%)						
Rated Current (A)			HD	46.7	52.3	64.5	78	100.9	134.1
			ND	69.1	69.3	84.6	100.1	133.6	160
Weight (lb)			16.5	57.3	77.2	77.2	94.8	94.8	

# Input & Output Specification

## 460V Class 150 – 800HP (110 – 500kW)

Model H100 XXXX-4 (PLUS)			1100	1320	1600	1850	2200	2500	3150	3550	4000	5000	
Applied Motor	Heavy Duty (150% OL)	HP	125	150	200	250	250	300	400	450	500	650	
		kW	90	110	132	160	185	220	250	315	355	400	
	Normal Duty (110% OL)	HP	150	200	250	300	350	400	500	550	650	800	
		kW	110	132	160	185	220	250	315	355	400	500	
Rated Output	Rated Capacity (kVA)		170	201	248	282	329	367	467	520	587	733	
	Rated Current(A)	HD	169	195	255	303	345	375	478	541	591	740	
		ND	223	264	325	370	432	481	613	683	770	962	
	Output Frequency		0-400 Hz										
Output Voltage (V)		3-Phase 380-500 V											
Rated Input	Working Voltage (V)		3-Phase 380-500VAC (-15%~+10%)										
	Input Frequency		50-60 Hz (±5%)										
	Rated Current (A)	HD	159.5	186.2	243.4	291	331.3	360.1	461.7	522.5	570.8	714.7	
		ND	215.1	254.6	315.3	358.9	419.1	469.3	598.1	666.4	751.3	938.6	
Weight (lb)		123.0	123.0	164.7	164.7	264.6	264.6	409.0	409.0	409.0	584.2		

## 575V Class 7.5 – 30HP (5.5 – 22kW) release date TBD

Model H100 XXXX-5 (PLUS)			0055	0075	0110	0150	0185	0220
Applied Motor	Heavy Duty (150% OL)	HP	5	7.5	10	15	20	30
		kW	3.7	5.5	7.5	11	15	18.5
	Normal Duty (110% OL)	HP	7.5	10	15	20	25	30
		kW	5.5	7.5	11	15	18.5	22
Rated Output	Rated Capacity (kVA)		9.0	12.0	16.9	22.9	26.9	33.9
	Rated Current(A)	HD	6.6	9.0	12.0	17.0	23.0	27.0
		ND	9.0	12.0	17.0	23.0	27.0	34.0
	Output Frequency		0-120 Hz					
Output Voltage (V)		3-Phase 575V						
Rated Input	Working Voltage (V)		3-Phase 525-600 VAC (-15%~+10%)					
	Input Frequency		60 Hz (±5%)					
	Rated Current (A)	HD	6	8.1	11	15.7	21.5	24.7
		ND	8.0	10.7	15.3	20.9	25.0	30.8
Weight (lb)		20.9	21.2	21.9	22.1	22.4	31.5	

## 575V Class 40 – 125HP (30.0 – 90.0kW) release date TBD

Model H100 XXXX-5 (PLUS)			0300	0370	0450	0550	0750	0900
Applied Motor	Heavy Duty (150% OL)	HP	30	40	50	60	75	100
		kW	22	30	37	45	55	75
	Normal Duty (110% OL)	HP	40	50	60	75	100	125
		kW	30	37	45	55	75	90
Rated Output	Rated Capacity (kVA)		42.8	54.8	63.7	79.7	103.6	127.48
	Rated Current(A)	HD	32.2	41.6	52	60	80	104
		ND	40.2	52.0	59.8	73.9	101.9	122.4
	Output Frequency		0-120 Hz					
Output Voltage (V)		3-Phase 575 V						
Rated Input	Working Voltage (V)		3-Phase 525-600 VAC (-15%~+10%)					
	Input Frequency		60 Hz (±5%)					
	Rated Current (A)	HD	32.2	41.6	52	60	80	104
		ND	40.2	52.0	59.8	73.9	101.9	122.4
Weight (lb)		32.3	55.1	74.1	74.3	96.1	96.4	

# Product Details

Items		Description		
Control	Control Method	V/F control, Slip compensation.		
	Frequency Set Resolution	Digital command: 0.01 Hz Analog command: 0.06 Hz (60 Hz standard)		
	Control Degree of Frequency	1% of the maximum output frequency		
	V/F Pattern	Linear, squared overload reduction and user V/F		
	Overload capacity	0.75-90kW	Rated Current: Normal duty 120% 1 min., Heavy duty 150% 1min	
		110-500kW	Rated Current: Normal duty 110% 1 min., Heavy duty 150% 1min	
Torque boost	Manual torque boost, automatic torque boost.			
Operation	Drive Mode	Optional: Keypad, terminal board or communication control		
	Frequency Settings	Analog type: -10-10 V, 0-10 V, 0-20 mA Digital mode: Keypad and pulse train input		
	Operation Functions	PID control, 3-Wire control, Frequency limitation, Secondary Functions, Forward/ Reverse rotation prohibited, DC braking, Commercial power switching, Speed search, Power braking, Reduction of leakage, Up-Down control, DC braking Flux braking, Frequency pump, Slip compensation, Automatic restart, Automatic tuning, Energy buffering control, Energy-saving control, Lead-Lag		
	Input	Multi Function Terminal (7EA)	The following functions can be set using IN-65-71 code parameters between PNP(Source) and NPN(Sink). Forward direction operation, Reverse direction operation, Reset, External trip, Emergency stop, Jog operation, Multi step speed frequency-high/med/low, Multi step acc/dec-high/med/low, DC braking during stop, Second motor selection, 3-wire, Frequency reduction, Fix analog command frequency, Transition from PID to general operation, Pre Heat, Pump Cleaning, RTC(Time Event), MMC Interlock, Select acc/dec/stop, Frequency increase, Hand State, Sleep Wake up change, Fire Mode, Damper control	
		Pulse Train	0-32 kHz, Low Level: 0-0.8 V, High Level: 3.5-12 V	
	Output	Multifunctional Open Collector Terminal		Less than DC 26 V, 50 mA
		Failure (Fault) Relay Terminal	Fault output and inverter operation status output	N.O.: Less than AC 250 V 2A, DC 30 V, 3A N.C.: Less than AC 250 V 1A, DC 30 V 1A
		Multifunctional Relay Terminal		Less than AC 250 V, 5 A Less than DC 30 V, 5 A
		Analog Output	0-12 Vdc(0-20 mA): Select frequency, output current, output voltage, DC terminal voltage, and others.	
	Pulse Train	Maximum 32 kHz, 0-12 V		
Protection Function	Trip	Over-current trip, Trip caused by external signals, ARM short-circuit current trip, Overheat trip, Pipe broken trip, Input open-phase trip Ground trip, Motor overheat trip, IO board connection trip, No Motor trip, Parameter Write trip, Emergency stop trip, Command loss trip, External memory error, CPU watchdog trip, Motor under-load trip, Overvoltage trip, Temperature sensor trip, Drive overheat, Option trip, Output open-phase trip, Drive overload trip, Fan trip, Inner fan trip, Low voltage trip during operation, Low voltage trip, Analog input error, Motor overload trip, Keypad command loss trip, Damper trip, Level Detect trip, All auxiliary motor failure trip, Pump clean failure (fault), Differential level trip, Lost feedback trip, MF dir error, MF Interlock, Field bus watchdog trip, Accumulated flow volume trip, Low/High flow rate trip, Sleep over cycle trip, Setpoint timeout trip, Low/High feedback trip, PI aux low/high level detection trip, Level detect trip		
	Warning	Command loss trip warning, overload warning, under-load warning, drive overload warning, fan operation, warning, damping resistance brake percentage warning, capacitor life warning, pump clean warning, Fire Mode warning and LDT warning, Low/High Feedback warning, Lost Feedback warning, Low/High Flow Rate Warning, Inner Fan Warning, Accumulated Flow Volume Warning, Sleep Over Cycle Warning, Differential Level Warning, Int485 ID is Zero, MF Data Share, Back Spin wait warning, Flow Limit warning, Loss Of Prime Warning, Disable WakeUp warning, Setpoint Timeout Warning, Thrust Bearing Warning, PI Aux Low/High Level Detection Warning		
	Instant Power Interruption	Below 8 ms: Continuous operation (within the rated input voltage and rated output) 8 ms or above: Automatic restart operation		
Structure/Operational Environment	Cooling Mode	Forced air-cooling		
	Protection Structure	IP20/UL Open(default), UL Enclosed Type 1(option), IP30(Keypad)		
	Ambient Temperature	With no ice or frost at -10-50°C(14-122°F) (At 40°C or above, derating of 2.5%/1°C current. At 50°C, 75% of the rated current is operable).		
	Ambient Humidity	Relative humidity less than 95% RH (to avoid condensation forming)		
	Storage Temperature	-20 ~ 65 °C (-4~149°F)		
	Surrounding Environment	Environment Level: 3C3(IEC60721-3-3) classifications (for SO2, H2S, CL, NO2) No corrosive gas, flammable gas, oil mist and dust etc., indoors		
	Altitude	Maximum 3,280 ft (1,000m) above sea level for standard operation. After that the driver rated voltage and the rated output current derating by 1% for every extra 328 ft (100m) up to 13,123 ft (4,000m).		
	Vibration	9.8m/sec <sup>2</sup> (1.0G) or below		
Ambient Atmospheric Pressure	70-106kPa			





## Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance. Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.



- According to The WEEE Directive, please do not discard the device with your household waste.



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