




# GENERAL INFORMATION

## AC Drive Family – Quick Comparison

FEATURE/RATING	SF320	HF320	HF430
The new Sumitomo AC Drive family allows you to choose the most cost-effective solution for your application requirements.			
HP Range (230V, 3 $\phi$ In)	1/4 - 10	1/4 - 10	1/2 - 20 (stocked) 30 – 75 (6 weeks)
HP Range (230V, 1 $\phi$ In)	1/4 - 3 HP	1/4 - 3 HP	Consult Factory
HP Range (460V, 3 $\phi$ In)	1/2 - 10	1/2 - 10	1 – 75
Enclosure Type (IEC)	IP20	IP20	IP20
Enclosure Type (NEMA)	Open Chassis	Open Chassis	NEMA 1
Conduit Entry Provisions	No	No	Yes
DB Optional	No	Yes	Yes
3-Wire Control	No (ext. relay)	No (ext. relay)	Yes
Volts per Hertz Control	Yes	Yes	Yes
Sensorless Vector Control	No	Yes	Yes
Closed Loop Vector Control	No	No	Optional
Constant Torque Speed Range	10:1	60:1 (SLV)	120:1 (SLV) 1000:1 (CLV)
Starting Torque	< 150%	170% - 200%	> 200%
Digital Frequency Resolution	0.1 Hz	0.1 Hz	0.01 Hz
A/D Converter Resolution	10 bits	10 bits	12 bits
Accel/Decel Time	0.1 – 3000 S	0.1 – 3000 S	0.01 – 3600 S
Speed Regulation	Motor Slip	Motor Slip (V/F) $\pm 0.5\%$ (SLV)	Motor Slip (V/F) $\pm 0.5\%$ (SLV) $\pm 0.04\%$ (CLV)
Carrier Frequency (see Note 1)	Adjustable (0.5 – 16 kHz)	Adjustable (0.5 – 16 kHz)	Adjustable (0.5 – 15 kHz)
Ambient Temperature (see Note 2)	-10°C – 50°C (14°F - 122°F)	-10°C – 50°C (14°F - 122°F)	-10°C – 50°C (14°F - 122°F)
Digital Inputs	5 (Active High) All Programmable	6 (Active High) All Programmable	9 (Selectable) 1 Fixed, 8-Prog.
Digital Outputs	2 – OC (prog.) 1 – Form C (fault)	2 – OC (prog.) 1 – Form C (prog.)	2 – OC (prog.) 1 – Form C (prog.)
Analog Inputs	0 – 10 V, 4 – 20 mA	0 – 10 V, 4 – 20 mA	0 – 10 V, 4 – 20 mA -10 to 0 to +10 V
Analog Outputs	1:10 VDC PWM (for remote meter)	1:10 VDC PWM (for remote meter)	1:10 VDC PWM 1:0 – 10 VDC 1:4 – 20 mADC
Motor Brake Relay Control	No	No	Yes

**Notes:** V/F = Volts/Hertz, SLV = Sensorless Vector, CLV = Closed-Loop Vector (option card required)

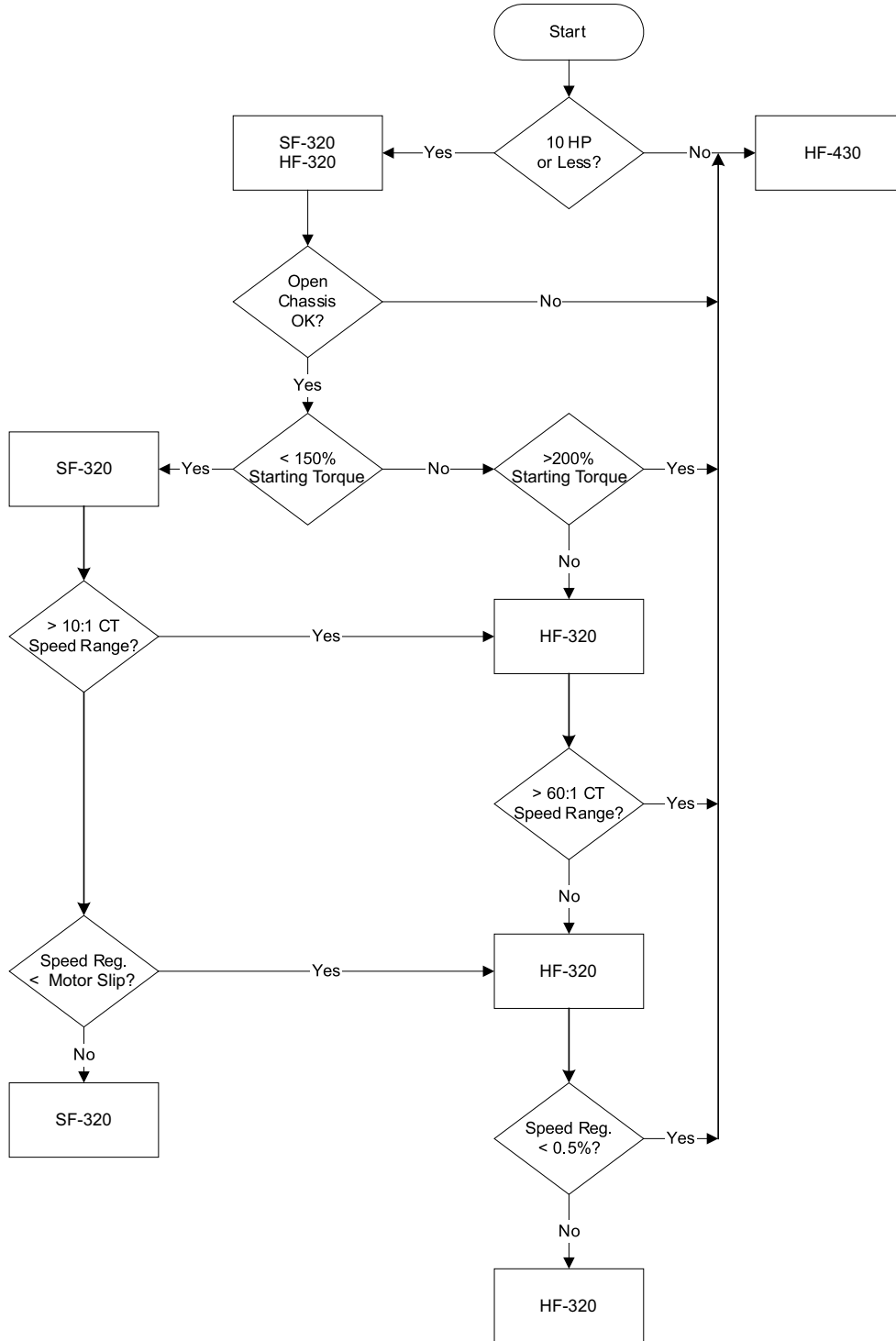
1: Derating required if the carrier frequency is set above 12 kHz.

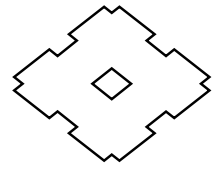
2: Above 40°C (104°F) Maximum Carrier Frequency = 5 kHz and derate 2%/°C.

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## AC Drive Selection Flow Chart

Use the following flow chart as a quick guide to choose the drive best suited to your application requirements.





## AC Drive Family Parameter Structure

Members of the Sumitomo AC drive family share a common parameter configuration scheme. SF320 drives include the base parameter set as shown below.

Each subsequent member adds additional parameters and groups to support the increased functionality.

### SF320 Parameter Groups

d 01 ... d 09  
F 01 ... F 04  
A -- : A 01 ... A 98  
b --- : b 01 ... b 89  
C --- : C 01 ... C 44

- Display parameters (D01 – D09) monitor drive performance.
- Basic parameters (F01 – F04) include frequently used parameters.
- A, B & C group extended parameters allow customization of drive operation.

### HF320 Parameter Groups

d 01 ... d 09  
F 01 ... F 04  
A -- : A 01 ... A 98  
b --- : b 01 ... b 92  
C --- : C 01 ... C 95  
H --- : H 01 ... H 34

- Display parameters (D01 – D09) monitor drive performance.
- Basic parameters (F01 – F04) include frequently used parameters.
- A, B & C group extended parameters allow customization of drive operation.
- H group parameters configure vector operation.

### HF430 Parameter Groups

d001 ... d090  
F001 ... F004  
A --- : A001 ... A132  
b --- : b001 ... b126  
C --- : C001 ... C123  
H --- : H001 ... H072  
P --- : P001 ... P031  
U --- : U001 ... U020

Note that HF430 drives use 3 numeric characters in the parameter number.

- Display parameters (D001 – D090) monitor drive performance.
- Basic parameters (F001 – F004) include frequently used parameters.
- A, B & C group extended parameters allow customization of drive operation.
- H group parameters configure vector operation.
- P group parameters configure options.
- U group is a special group that can be used by an OEM to limit user changes.

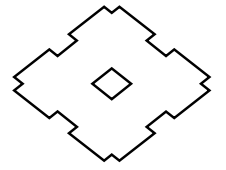
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## Monitoring and Troubleshooting Features

The Sumitomo AC drive family provides many features that assist in monitoring drive, and associated equipment, operation. These features also assist in

troubleshooting should something go wrong with the installation.

Trip	Cause	Display	Applies To
Over-current	Output short circuit, sudden heavy load or jam. At Constant Speed During Acceleration During Deceleration Other	E01 E02 E03 E04	All
Overload	Motor current is above the rating for a period of time.	E05	All
DBR OL	The DB resistor duty cycle is too high.	E06	HF320, HF430
Over Voltage	The DC bus voltage has exceeded a preset level.	E07	All
EEPROM Error	Possible severe electrical noise or temperature too high.	E08	All
Under Voltage	The DC bus voltage has dropped below a preset level.	E09	All
CT Error	Electrical noise or problem with Current Transformer.	E10	HF320, HF430
CPU Err.	Problem with the drive CPU.	E11	All
External Trip	A programmable terminal set for External Trip is activated.	E12	All
USP	Power was applied while FR or RR was active.	E13	All
Ground Fault	Excessive current is flowing between an inverter output terminal and ground. <b>(For Equipment Protection Only)</b>	E14	All
Input Over Volt	Input voltage is over a preset limit for a preset time.	E15	All
Temp. Pwr Loss	Power loss lasting for less than 15 ms which will allow restart.	E16	HF430
Thermal	Inverter module is over the allowed maximum temperature.	E21	All
Gate Array Err.	Communication problem between CPU and gate array.	E23	HF430
Phase Loss	One of the input phases has been lost.	E24	HF430
Overload 2	An overload has occurred when the output frequency is under 0.2 Hz.	E25	HF430
IGBT Err.	An instantaneous over-current (short) is detected on the output terminals.	E30	HF430
PTC Error	If a PTC thermistor is used to protect the motor, the temperature (resistance) is too high.	E35	HF320, HF430
Abnormal Brake	A problem in sequencing a motor brake.	E36	HF430
Option 1	An error on option board 1.	E60-E69	HF430
Option 2	An error on option board 2.	E70-E79	HF430
UV Wait	The inverter is waiting for auto restart after an under voltage trip.	–	HF430

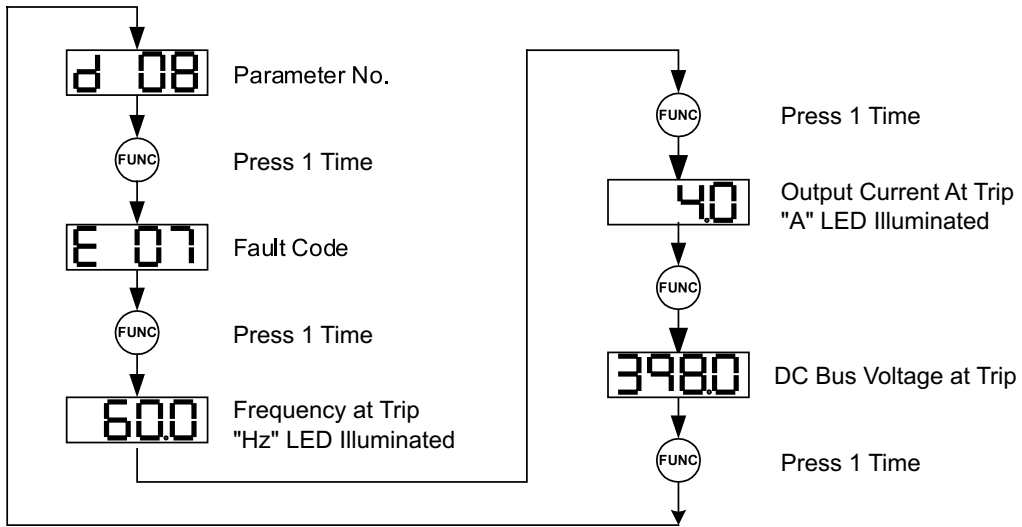


## Fault Condition Monitoring

When a fault trip occurs, the Sumitomo drive family provides additional information about the drive operating

condition at the time of the fault. This information is stored in the non-volatile fault history memory.

### SF320 and HF320 Drives



### HF430 Drives

