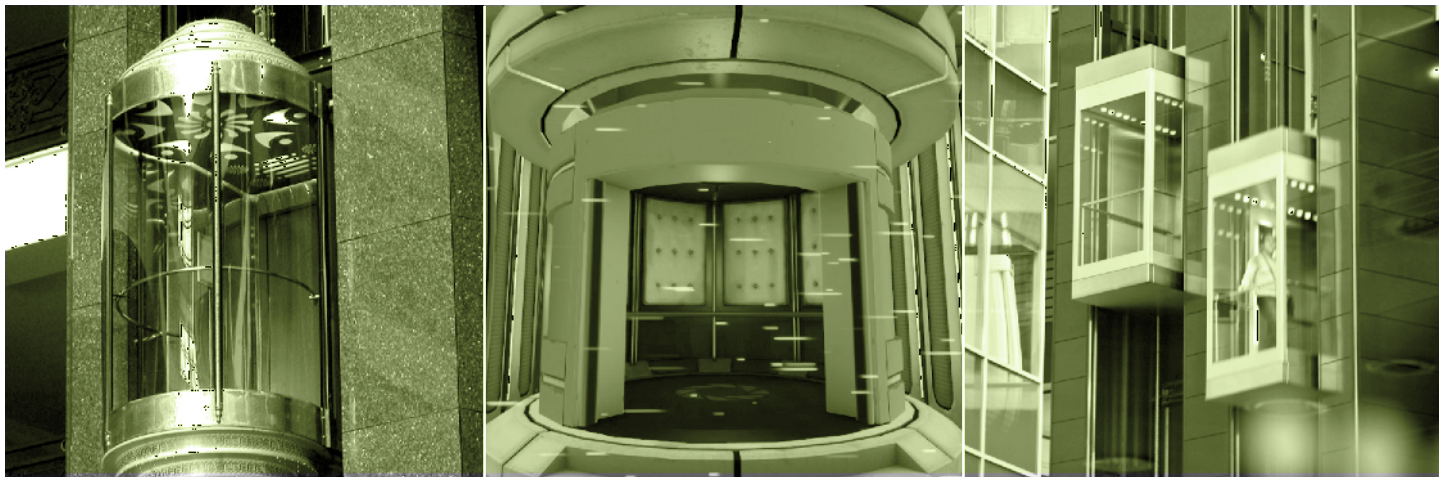


HH180 Series Drive



HH180 Series Special Drive for Elevator



HH180 Series Special Drive for Elevator

HH180 series drive is a special drive designed for elevator applications. It is designed in such a way that it provides high-performance control for both gear and gear-less Hoists.

HH180 series drive has all the features and functions required to control elevators in smooth and safe manner.

Type Designation Key

HH180 - 2R2 - 4

① ② ③

Sign	Detailed description of the sign
①	Drive Series Name
②	Power Rating in kW
③	Voltage Class: 4-400 V

Model Selection and Outline Dimensions

Drive Model Number	I _{continuous} (A)	P (kW)
HH180-4R0-4	9	4
HH180-5R5-4	13	5.5
HH180-7R5-4	17	7.5
HH180-110-4	25	11
HH180-150-4	32	15
HH180-185-4	37	18.5
HH180-220-4	45	22

Main Functions and Characteristics

Compatible with synchronous and asynchronous motor

HH180 series drive is compatible with both synchronous and asynchronous motors which are operated at speed less than 4 meter/sec.

Start torque compensation without weight sensor

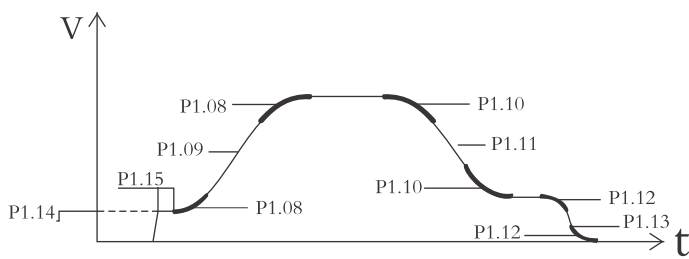
- HH180 series drive supports start torque compensation function without weight sensor. This function is very useful for smooth control of gear-less synchronous motor.
- HH180 series drive supports pre-torque compensation function using weight sensor. This function is very useful, hold the hoist in position and preventing slippage downwards during start-up.

Synchronous motors identify the initial magnetic pole angle in static state

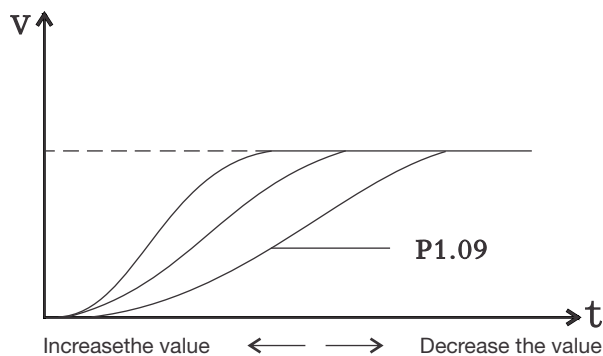
- For permanent magnet synchronous motors, HH180 series drive supports auto-tuning function using sin/cos encoder.
- Both induction motors and synchronous motors can perform rotation auto tuning.

Optimized speed curve

HH180 series drive provides optimized S curve control specially designed for elevator applications to decrease jerk during starting and stopping and increase comfort level during acceleration, deceleration and stopping.



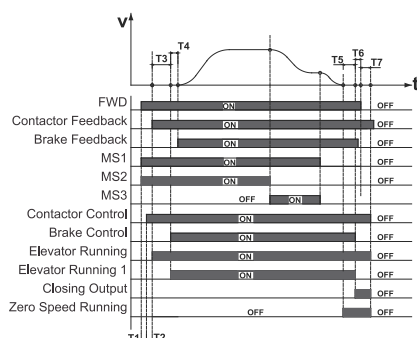
Running diagram of S curve



Adjust diagram of S curve's accelerate segment

Reliable brake sticking and contactor control function

Control the contactor and brake sticking according to the running logic of elevator, improve the safety



Optimized speed adjusting loop

HH180 series drive provides capability to adjust proportional and integral gains in speed loop of drive on the fly. This improves the capability to fine-tune the performance of the drive at site during commissioning, provides high degree of comfort level to passengers during start and stop.

Performance and encoder interface

- With high-performance current vector control, the torque delivery during start is very high and output torque pulsation is extremely low.
- Optional PG card for HH180 series drive supports multiple encoder interfaces like 5 V - 24 V incremental encoders, SIN / COS encoders, U/V/W encoders and absolute encoders (End at 2.1).

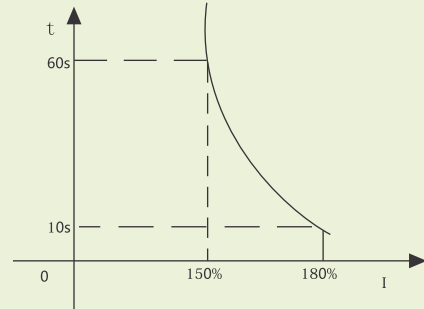
Force speed down processing function

Prevent the elevator from top-hitting or bottom-clashing in the process of up or down running

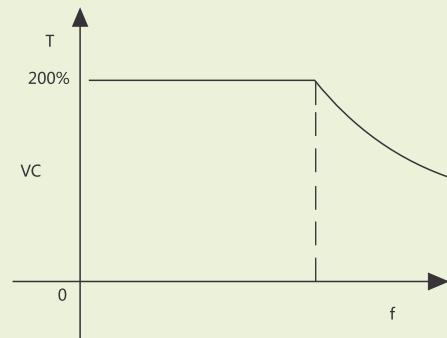
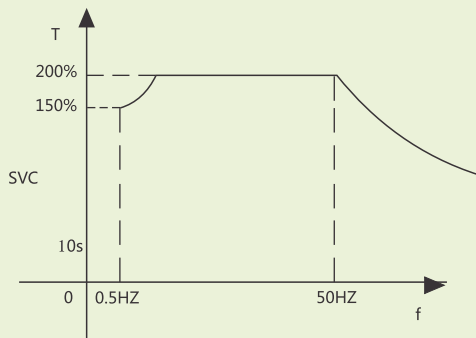
HH180 Series Special Drive for Elevator

Features

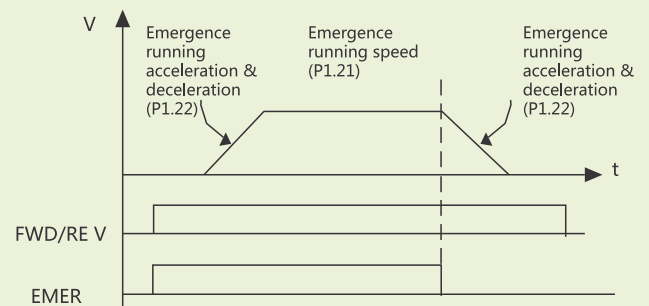
1. Single drive can operate both asynchronous motor by SVC / VC and synchronous motor.
2. Overload Capacity: 60 s with 150% of rated current, 10 s with 180% of rated current.



3. Starting Torque: 150% of rated torque at 0.5 Hz (SVC); 200% of rated torque at 0 Hz (VC).



4. Special elevator software is incorporated in the HH180 series drive to make the drive simple to operate and user-friendly.
For e.g. Frequency is indicated in meter/sec., S-curve, sheave diameter, rope ratio etc. can be set-up by standard parameters in the drive.
5. Braking unit is built-in up to 18.5 kW.
6. Comply with IEC61800-3 and IEC61800-5-1.
7. Emergency running software is available in HH180 series drive. In case of power failure, the elevator is brought to the nearest floor by using this special function.
8. HH180 series drive is designed to control elevators with speed up to 4 meter / sec.



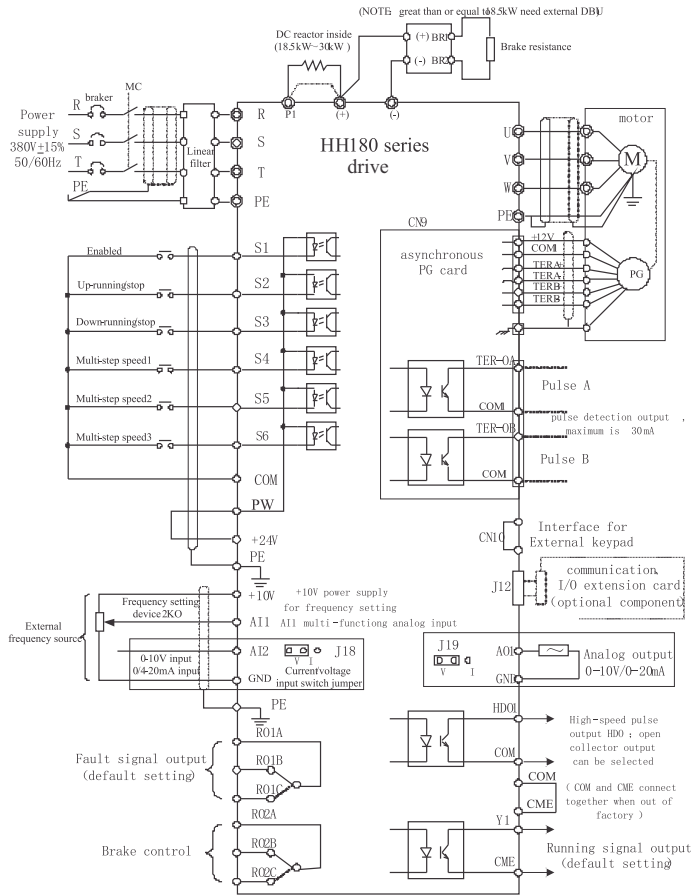
Standard Specifications

380 V Grade Power Supply	Input Voltage Range	3 AC 380 V $\pm 15\%$
	Input Frequency Range	47~63 Hz
	DBU	4~15 kW with DBU inside
Control Function	Start torque compensation without weight sensor (only sin / cos encoders are viable)	
	Start torque compensation with weight sensor (weight sensor is necessary)	
	Auto-tuning (rotation, synchronous motors identify the initial magnetic pole angle in static state [sin/cos encoders])	
	Function of Contacting brake control and output contactor control	
	Logic of elevator enable, can make the elevator running safer.	
	Force slowdown running, overhaul running, emergency running	
	DC braking while start and stop	
	Multi-Step Speed Control (8 steps speed can be set)	
	Digital, analog, communication, multi-step speed and speed tracking and start	
	Triggers FDT output when output frequency of the drive reaches to the set-point value.	
Control	Control Mode	Sensorless vector control (SVC), vector control (VC), V/F Control
	Frequency Range	0.01~400 Hz
	Overload Capacity	150% rated current 60 S 180% rated current 10 S
	Start Torque	0.5 Hz / 150% (SVC); 0 Hz / 200% (VC)
	Speed Adjusting Range	1 : 100 (SVC); 1 : 1000 (VC)
	Speed Accuracy	$\pm 0.5\%$ maximum speed (SVC); $\pm 0.1\%$ maximum speed (VC)
	Resolution of Frequency Setting	Digital setting: 0.01 Hz; Analog setting: maximum frequency x 0.1%
	Signal for Frequency Setting	Voltage range: 0~10 V; Current range: 0~20 mA
Terminals	Input Terminals	6 programmable digital inputs, another 4 can be extended by I/O extension card; 2 programmable analog inputs, one is 0~10 V, another one is 0~10 V or 0/4~20 mA
	Output Terminals	High pulse output-speed pulse (0~50 kHz Rectangular wave): provide 1 output terminal; Open collector output: provide 1 (another 1 can be extended); Relay output: provide 2 (another 1 can be extended); Analog output: provide 1 (another 1 can be extended), 0/4~20 mA or 0~10 V can be selected.
Protect Function	Protection of Speed Deviation is too Large	It can prevent permanent magnet synchronous motor from over speed.
	Over Voltage Protection	380 V grade: stop when the voltage of DC bus is more than 800 V
	Under Voltage Protection	380 V grade: stop when the voltage of DC bus is less than 350 V
	Protection of Instantaneous Overcurrent	The output current more than 200%
	Motor Protection	Electronic thermal protection
	Overheat Protection	Protect by thermistor
Environment Requirements	Temperature	Suitable for Indian working condition.
	Humidity	Relative humidity of atmosphere $\leq 90\%$, without condensation
	Height above Sea Level	Under 1000 m
	Libration	The maximum libration should less than 5.8 m / S2 (0.6g)
	Installation Sites	Indoor (place without oil, water, metal powder, dust etc.)

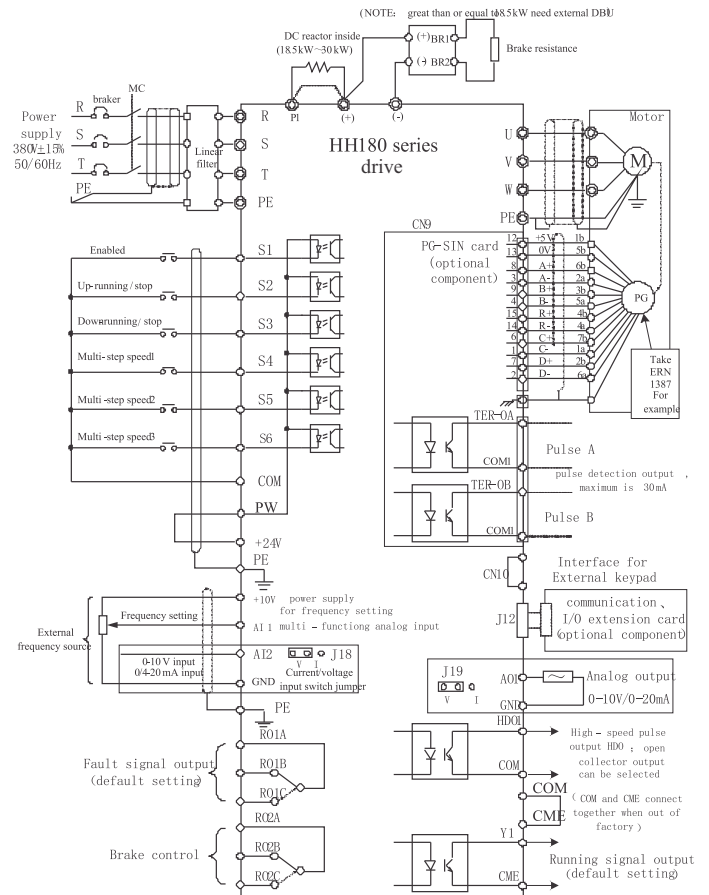
HH180 Series Special Drive for Elevator

Single Wiring Diagram

Wiring diagram for HH180 series drive for asynchronous motors



HH180 series drive for synchronous motor applications





About Us

Founded & established in 1983 as Hi-Rel Electronics Pvt. Ltd., we are now a Hitachi group company - Hitachi Hi-Rel Power Electronics Pvt. Ltd., recognized as a pioneer in power electronics. With 3 decades of experience, we have garnered a significant level of trust in our market segment and continue to offer world class power electronics products, value added services & customized solutions.

Our product portfolio includes UPS (uninterruptible power supply) for industrial, commercial & enterprise applications, medium voltage & low voltage variable frequency drives, steel automation & engineered drives for customized applications, industrial automation & control products like PLC, SCADA & DCS, solar inverters, railway products and other customized products like UMPS, I-dip (dip ride through solutions).

- Leading manufacturer of UPS, drives & automation products and solar inverters
- State-of-the-art manufacturing facility at Gandhinagar & Sanand in Gujarat, India
- In-house R&D facility recognized by DSIR, Government of India
- ISO 9001:2008, ISO 14001:2004 & BS OHSAS 18001:2007 certified company with export house status
- Approved by leading consultants and EPC vendors
- Pan India & global presence
- Serving entire gamut of industries
- Rich experience in “mission critical” applications
- Dedicated & decentralized 24x7 after-sales-service
- Offers products with greater energy efficiency & lower carbon footprint

With expertise, experience and an efficient product line, we will always be your power electronics partner.

When you choose to do business with us, you are partnering with a company who cares.

Global & Pan India Presence



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In the spirit of continuous improvement, specifications are subject to change without notice.

