



DSD[®] 412



DSD 412 - DC ELEVATOR DRIVE

Magnetek's DSD 412 is the DC drive of choice throughout the elevator industry and the world. These drives can be used on both geared or gearless elevator systems for new construction or modernization projects. Our DSD 412 is an economical and efficient way to replace older DC drives or motor-generator (MG) sets. It virtually fits any analog or digital application and sets up quickly. Default parameters provide a useful starting point. Only a few adjustments are required to achieve flawless elevator operation.

Versatility is what makes the DSD 412 one of our most popular drives. It offers a broad range of application features and an expansive range of ratings from the least demanding to the fastest and heaviest cars. If ever there was a "workhorse" of a drive with versatility, the DSD 412 DC Elevator Drive is your best candidate for the job.

KEY FEATURES - BENEFITS

Completely Digital Solid State Drive - No analog adjustments, and less maintenance, down time or costly repair bills.

High Torque Capacity - Peak torque rating of 250% easily accommodates acceleration requirement for mid- to high-rise buildings.

Self-Tune Capability - Immediate motor/drive compatibility for faster start-ups; vital for modernization projects.

Ultra Smooth Torque Reversing - Bumpless transfer of torque from motoring to regenerating at all speeds even with balanced load.

Unique Elevator Speed Regulator - Providing no overshoot at the end of acceleration or deceleration.

Power Line Regeneration of Overhauling Loads - Returns electrical energy to the power system for maximum efficiency and minimum overall power consumption.

THE "STANDARD"
BY WHICH
ALL OTHER DC
ELEVATOR DRIVES
ARE MEASURED...
THE DSD 412
IS INSTALLED
IN MOST
HIGH PROFILE
BUILDINGS IN
VIRTUALLY EVERY
COUNTRY IN
THE WORLD.

DSD® 412 - THE FIRST CHOICE

The DSD 412 drive provides superior efficiency over existing MG (motor generator) sets. Furthermore, a fully digital drive requires far less maintenance, down time and costly repair bills.

The DSD 412 is easy to install in your car controller cabinet. Offering superior performance features, the DSD 412 fits virtually any application. Default parameters provide an accurate starting point for customized parameters. Only a few adjustments are required to achieve nearly flawless elevator operation.



DSD 412 operates some of the larger elevators in the Sears Tower in Chicago, Illinois.

ELEVATOR APPLICATION FEATURES

DESIGNED WITH HIGH TORQUE CAPACITY

Peak torque rating of 250%

SELF-TUNE OF MOTOR PARAMETERS

Immediate motor/drive compatibility. Enhances start-up; vital for modernization installations.

ULTRA SMOOTH TORQUE REVERSING

The DSD 412 is the only DC drive to provide "bumpless" transfer of motor current from motoring to regenerating during full speed travel at balanced load.

SIMPLIFIED MOTOR FIELD ADJUSTMENTS

For both motor field weakening and stand-by field adjustments.

CONTROL DRIVE THROUGH SERIAL COMMUNICATIONS

Magnetek offers standard elevator protocol via RS-422 serial channel at 19.2K baud.

AUTOMATIC FIELD REGULATOR

Provides smooth transition between high torque and high speed operation. Allows for field current reduction when elevator is not in use.

REDUCES EFFECTS OF ROPE RESONANCE FOR DIFFICULT HOISTWAYS

- Internal Frequency Notch Filter rejects rope resonance interference.
- High/Low Gain reduces response of speed regulator at higher speeds.
- Tach Rate Gain subtracts a portion of the speed feedback derivative from the output of the speed regulator.

FULL FUNCTION I/O

- RS-422 serial channel at 19.2 K baud
- (11) digital inputs, (2) relay outputs
- Programmable: (4) digital outputs, (1) relay outputs
- Analog: (2) programmable outputs, (2) inputs

BUILT-IN DIAGNOSTICS

Verifies critical drive functions and diagnoses the most common electrical faults, helping the mechanic to correct problems rapidly.

POWER LINE REGENERATION OF OVERHAULING LOADS

Returns electrical energy to the power system for maximum efficiency.

UNIQUE ELEVATOR SPEED REGULATOR FOR BEST RIDE QUALITY AND IMPROVED LANDING ACCURACY

- Elevator Speed Regulator provides no overshoot at the end of accel or decel periods.
- In contrast, a typical PI speed regulator has an overshoot at the end of the accel or decel periods.

ALLOWS FOR A SIMPLIFIED PRE-TORQUE COMMAND

Helps to eliminate car roll-back by priming the speed regulator via a pre-torque command on an analog input channel or serial channel (i.e. from a load weighing device).

CONTROLLING BRAKE SLIPPAGE DURING THE STOP

Ramp Down Stop - an option that allows the motor torque to be gradually reduced while setting the brake.

SELECTABLE INPUT CONTROL LOGIC

For Run-Up/Run-Down or Run/Direction relay control with internal preset speeds.

INTERNAL SPEED GENERATION VIA FOUR S-CURVES

Adjustable acceleration, deceleration and jerk rates. Multiple S-Curves can be configured for short runs, long runs, emergency stopping and inspection.

SELECTABLE CHOICE OF SPEED REFERENCE

- External analog reference follower
- Serial link reference follower
- Internal reference generator with S-Curve smoothing (choice between binary or progressive relay selected speeds)

INTERNAL MOTOR OVERLOAD

User defined motor overload curve meets the CSA requirements.

**DSD 412 -
ADAPTABLE
TO A BROAD
RANGE OF
DC MOTORS**

DSD 412 DC ELEVATOR DRIVE

Rated (HP)	Continuous Output Current Rating (A)	Maximum Output Current for 5 Sec (A)	Field Current Range (A)	Dimensions			Weight
				Height	Width	Depth	
15	25	62.5	0.2 to 40.0	21in (540mm)	13in (330mm)	10in (260mm)	29 lbs (13 kg)
30	50	125		22in (560mm)	13in (330mm)	10in (260mm)	42 lbs (19kg)
60	100	250		22in (560mm)	13in (330mm)	10in (260mm)	42lbs (19kg)
125	195	475		22in (560mm)	13in (330mm)	14in (360mm)	62 lbs (28kg)
200	300	750		24in (610mm)	17in (430mm)	13in (330mm)	110 lbs (50 kg)
300	440	1100		44in (1120mm)	32in (810mm)	16in (410mm)	225lbs (102kg)
400	580	1450		71in (1800mm)	45in (1800mm)	18in (460mm)	450lbs (104kg)
600	870	2175		71in (1800mm)	45in (1800mm)	18in (460mm)	450lbs (104kg)
800	1270	3175		71in (1800mm)	45in (1800mm)	18in (460mm)	450lbs (104kg)

- All ratings at 50/60 based on a geared and gearless elevator application
- Nominal input voltage: 150 to 525 VAC; 600 VAC drives are available on special request.
- Dimensions and weights reflect the basic open frame model; a touch-proof cover option is available for up to 200 HP.
- Operating temperature: -10°C (14°F) to 55°C (130°F)
- CSA listed.

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