DC3 DC Drives

Fractional to 2 HP DC drives for both non-regenerative and regenerative applications (U_L, U_L, C_E)

The Reliance Electric DC3 family of drives provides cost-effective variable speed control and operates on both 115 and 230 VAC single-pluse power. These drives offer both users and machinery-builders the right drive at the right price.

Standard Features

DC3 drives are available in both platestyle chassis designs, as well as NBMA 1 and NEMA 4X/12 enclosed designs, making it easy to find a model that will meet your application needs. To simplify the selection process, each model number begins with a simple lence and number combination:

Drive Types

- DC3N: Simple non regenerative drive
- DC3E: Non-regenerative drive with isolated 0/10 VDC and 4/20 mA inputs
- DC3R: Regenerative drive
- DC3RI: Regenerative drive with isolated ± 10 VDC and 4-20 mA inputs
- DC3RD: Regenerative drive with a membrane keypad and corresponding LEDs

DC3 drives incorporate a Jull-wave SCR bridge design for optimal AC to DC conversion. This minimizes the heat build-up at the motor and extends the motor's operating life.

All DC3 drives are designed and manufactured with surface mounted components, allowing for compact designs as well as improved field reliability. Every DC3 product carries UL, cUL, and CE certification labels, testifying to product quality and robustness. features rarely found in competitive. DC drive products in this class.

Enclosed Drives

Enclosed models are designed for wall or machine mounting and include provisions for direct conduit connections to the drive enclosure. Every enclosed drive comes standard with mounted operator devices as well as line input fusing, providing the customer a self-contained drive that's nearly ready to run out of the box.

Plate Drives

Plate models are designed for mounting and integration into a cabinet or some other enclosure. Each model comes with a loose 10 kOhm speed potentiometer for customer use.

Common Set of Specifications

All DC3 drives share a common set of specifications and features, listed here. Specifications and features unique to individual models are described on the pages that follow.

Standard Spacifications

Standard Specifications

- AC line input voltage selection: - 115 VAC, 1-Phase, 50/60 Hz - 230 VAC, 1 Phase, 50/60 Hz
- AC line voltage variation: - ±10% of selected input
- AC line input frequency variation: -48 Hz to 62 Hz
- Output voltage: 0 to 90 VDC armature @ 115 VAC 0 to 180 VDC armature @ 230 VAC
- Output voltage form factor: 1.37 @ motor base speed
- Overload capacity: - 150% for 1 minute
- Ambient temperature:
 10°C to 55°C plate style
 10°C to 45°C enclosed
- Elevation:
 1.000 meters without derating
 - Derate 1% for every 90 meters above 1000 meters







DC3N Non-Regenerative DC Drives



Standard Specifications

- Service factor: 1.0
- Dury: Continuous
- Speed regulation: ± 1.0% of motor base RPM with 95% load change
- · Speed range:
 - 50:1 with 100% torque
 - 60:1 usable range
- Overload capacity: 150% for 1 minute

Standard Adjustments

- Speed reference potentiometer: 10 kOhm, 2 Watts
- Separate porentiometers for:
- Minimum speed: 0 to 35%
 Maximum speed: 75 to 100%
- Current limit: ≤ 150% - Acceleration: 0.5 to 17 sec.
- Acceleration: 0.5 to 15 see.
- Deceleration: 0.5 to 17 sec. IR compensation: 0 to 15%

Instruction Manual: D2-3451

Standard Features

- LED indicators:
 - RED for current firm
 - GREEN for power ON
- Terminal connections: Spade type terminals
- · Loose potentiometer and spade connector kit
- Inhibit curcuit kit

Selection Table

Wodel No.	Input Voltage	HP	Armature Amba Cont.	Armature Vollage	Endceure Type
DC3N+12D-00-019-AN	115 WC,	1/0 .0 1/2	5.0	A 44 A 44 A 44 A	S measure
	1-F ace	I-Prace 1/2101.01	10.0 *	0.10 . 0. MPC	Hars
	20,78%0,	144 (511.0	٤.0	010 000 100	
	1-F ase	1.0 to 2.01	10.01	0.10.15(1.503)	142.96

"Denotes capacity with Healsin's optima installed. Use Heatstak model DCDN H5-03,

Dimensions: DC3N-12D-00-010-AN



ALC VESSION IN SHESKY L VEREN

Dimensions: DC3N-HS-00 and DC3N-HS-01 Heatsinks



Part Number	Dim A	Dim B	Dim C
DCaN ITS CO	4.49 (112)	2.99 (76)	0.7 (19)
DOWN HER CI	7.78 (198)	6.00(1112)	0.85 (23)

DC3N Non-Regenerative DC Drives



Standard Features

- Operator speed potentiometer
- ON/OFF toggle switch
- · Power ON indicator light
- AC line input fusing: 1.1 & 1.2
- · Customer terminal block
- Grounding screws
- NEMA 1 or NEMA 4X/12 design

Selection Table

Wode No.	laput Vottage	HP	Armature Amps Cont.	Armature Voltage	Enclosure Type
2	F15 WC,	1/8 to 1-2	5.0	241.00.000	1514
DC3N-12D-01-010-AN	Photo	1/2 to 1.0**	'0.9**	0.080.000	NEWS
	230-606	1/4 to _01	5.9	2	1000
	-Phase	.8 15 2.0**	0.0**	0.0 00 000	ALM/5
	115-000	1/8 to 1/2	5.0	3. 44.000	10000
CC3N-12D-12-010-4N	-Phase	-2 to _C**	- 18.0	0.080.000	MEND 400 2
	230 000	1/4 15 1.0	5.3	3-1-00-000	10040 1000
	Photo	1.8 to 2.0**	18.5	0.0 00 000	14544497 2

** Denotes capacity with Heatting option Listoffet. Use Heatting mode, DCIN US 01.

Dimensions: DC3N-12D-01-010-AN

DC3N-12D-4X-010-AN



Standard Specifications

- Service factor: 1.0
- Duty: Continuous
- Speed regulation: ±1.0% of motor base RPM with 95% load change
- Speed range: 50:1 with 100% Torque 60:1 usable range
- Overload capacity: 150% for 1 minute

Standard Adjustments

- Speed reference potentionicter: 10 kOhm, 2 Watts
- Separate potentiometers for:
 Minimum speed: 0 to 35%
 - Maximum speed: 75 to 100%
 Convert limit: <u>s</u> 150%
 - Acceleration: 0.5 to 17 sec.
- Deceleration: 0.5 to 17 sec. IR compensation: 0 to 15%

Instruction Manual: D2-3451

DC3N Non-Regenerative DC Drives





Standard Specifications

- · Service factor: 1.0
- · Duty: Continuous
- Speed regulation:
 - 1.0% with arm, volt, feedback
 0.1% with tach, feedback
- · Speed range:
 - 50:1 with 100% torque
 - 60:1 usable range
- Overload capacity: 150% for 1 min.
- · Field supply rating:
 - 1 Amp DC
- 50/100 VDC (115 VAC)
- 100/200 VDC (230 VAC)
- Tachometer feedback ranget 7 to 50 VDC/1000 RPM
- · Isolated reference input:
 - 0-10 VDC
 - 4-20 mA

Standard Adjustments

- Speed reference potentiometer: 10 kOhm, 2 Warts
- Separate potentiometers for:
 Minimum speed: 0 to 50%
- Maximum speed: 0 to 100%
- Current Limit: ≤ 200%
- Accel: 0.5 to 10 sec.
- Decel: 0.5 to 10 sec.
- IR compensation: 0 to 15%
- Tachometer feedback adj.

Instruction Manual: D2-3452

Standard Features

- LED indicators:
- RED for current limit
- GREEN for power ON
- On-heard fusing: AC line input (1.1 & 1.2)
- Unidirectional
- · Cage-clamp terminal blocks
- Loose potentiometer kit.
- Inhibit circuit kit

Selection Table

- Isolated input
- Enclosed model
- NEMA 4X/12
- Operator speed potentiometer
- Power ON indicator light
- AUTO/MAN selector switch
- Customer terminal block
- Grounding screws

Model No.	Input Voltaga	HP	Armature Amps Cerri.	Ar wature Voltage	Елсіозштв Тура
	5 VAC 1-Phase	194701.0	10.0	0.16-90 MDD	Face
DC3NF12DF00F010FA1	250 %AC 1-Phase	1,2	10.2	010 180 VDO	Fire
D001140D-04440-11	1 5 947; 1-Phase	194 1 1 3	10.2	0.00 00 000	NEWX 40-12
DC3 912041740 0440	288 94C 1-Frase	122 10 2.3	1900	0 to 180 (000	NEWA 40012

Dimensions: DC3N-12D-00-010-Al







DC3R Regenerative DC Drives





Standard Specifications

- Service Factor: 1.0
- Duty: Continuous
- Speed regulation:
- 1.0% with arm, volt, feedback
- 0.1% with tack, feedback
- Speed range:
 - 50:1 with BOSe torque
 - 60:1 usable range
- Overload capacity: 150% for 1 mm.
- Field supply rating:
- 1 Amp DC
- 50/100 VDC (115 VAC)
- 100/200 VDC (230 VAC)
- Tachometer feedback range: 7 to 50 VDC/1000 RPM
- Non-isolated reference input for DC3R-12D-00-010-AN: + 0-10 VDC

Standard Adjustments

- Speed reference potentiometer: 10 kOhm, 2 Watts
- · Separate potentiometers for:
- Minimum speed: 0 to 35%
- Maximum speed: 0 to 100%
 Forward torque: ≤ 200%
- Reverse tempte: $\leq 200\%$
- Forward accel: 0.5 to 6 sec. Reverse accel: 0.5 to 6 sec.
- IR compensation: 0 to 15%
- Deadhard compensation adj. Tachometer feedback adj.

DC3R-12D-00-010-AI adds isolated analog reference inputs:

- 1 25 & 1 250 VDC
- 1 5, 4 20 & 10 50 mA

Instruction Manual: DC 3R: D2 3453

Standard Features

Selection Table

- On-board AC input line fusing (L1 & L2)
- · Cage-clamp tenninal blocks
- Loose potentiometer kit
- Inhibit circuit kit

Model No.	Input Voltage	HP	Armature Amps Cont.	Armature Voltage	Endosure Type	
	- 5 940	1:4 m 1/2	70	A		
DOOD 40D 00 2 (0 23)	1-Phase	1-2 to 1.0 ***	10.0 ***	 C ID SC VDC 	PIEDE	
DC31F12D-00F010-63	228 WC	1/2 bc 1.0	14	A 14 4 2 6 1 10 0	Pista	
	1 Phase	1.0 to 2 C 1	10.0	e mate suc		
	· · 5 %AC,	1+1 to 1/2	7.0	0.0000000	- Diana	
D007-12D-00-010-AI	1-Phase	1-2 in 1.8 ***	10.0 ***	· CID SC ADC	inde:	
	220 WVC	1/2 to 1.0	112	6 M 10 C 1000	Disk	
	1-Phase 1.0 to 2 C 1		10.0 **	e mare and	142.08	

^{3.2,4} Denotes evolvity with Heatseld option installial. Use Her kink model DCPR-HS-88

Dimensions: DC3R-12D-00-010-AN







Dimensions: DC3R-HS-00 Heatsink



DC2D HC 00 Heataink







Standard Specifications

- Service factor: 1.9
- * Duty: Continuous
- Speed regulation:
 - 1.0% with arm, welt, feedback,
- 0.1% with tach, feedback
- Speed range:
 - 50:1 with 100% forque.
 - 60:1 usable tange
- Overload capacity: 150% for 1 min.
- · Field supply rating:
- 1 Amp DC 50/100 VDC (115 VAC)
- 100/200 VDC (230 VAC)
- Tachemeter feedback range: 7 to 50 VDC/1000 RPM
- Non-isolated reference input: ± 0-10 VDC

Standard Adjustments

- Speed reference potentiometer: 10 kOhm, 2 Watts
- Separate potentiometers for:
- Minimum speed: 0 to 35%
- Maximum speed: 0 to 100%
 Forward torque: ≤ 200%
 Reverse torque: ≤ 200%
- Borward accel: 0.5 to 6 sec. Reverse accel: 0.5 to 6 sec.
- IR compensation: 0 to 15%
- Deadhard compensation adj. Tachometer Jeedback adj.

Instruction Manual: D2-3453

Standard Features

- On-board fusing: AC line input (L1 & L2)
- · Cage clamp terminal blocks
- Operator speed potentiometer
- ON/OFF toggle switch
- Power ON indicator light
- Grounding screws

Selection Table

Model No.	Input Voltage	HP	Annature Amps ConL	Ar mature Vollage	Endceure Type
12122022010200	115 W90. 1-Prese	14 to 1 C	18.9	0 to 99 VCC	NEM4 40019
DC3 612D-13-010-AN	200 VAC. 1- Preze	Sim 2 C	10.0	0.000.000	NERIS 430° S

Dimensions:

DC3R-12D-4X-010-AN



DC3R Regenerative DC Drives





Standard Specifications

- Service factor: 1.0
- Duty: Continuous
- Speed regulation:
- 1.0% with arm, volt, feedback
 0.1% with tach, feedback
- · Speed range:
- 50k1 with 100P% Torque
- 60:1 usable range
- Overload capacity: 150% for 1 min.
- · Field supply rating:
 - 1 Amp DC
 - 50/100 VDC (115 VAC)
- 100/200 VDC (230 VAC)
- Tachometer feedback range:
- 7 to 50 VDC/1000 RPM • Non-isoland miamaga inc
- Non-isolated reference input: ± 0-10 VDC

Standard Adjustments

- Speed reference potentiometer: 10 kOhm, 2 Walts
- Separate potentiometers for:
- Minimum speed: 0 to 35%
- Maximum speed: (Fro 100%)
- Forward torque: ≤ 200%
 Power
- Reverse rorque: ≤ 200%
- Forward accel: 0.5 to 15 sec. - Reverse accel: 0.5 to 15 sec.
- Reverse accer. 0.5 to 15 see.
 IR compensation: () to 15%
- Deadhand compensation adj.
- Tachometer feedback adj.
- Cycle dwell time: 0.1 to 1 see. (adjusts in 0.1 see, increments)

Instruction Manual: 102-3455

Standard Features

- Dual operator speed potentiometers with independent forward & reverse setpoints
- ON/BRAKE/OFF toggle switch.
- . log, forward, stop, reverse operator membrane keys
- Jog. forward, stop, reverse indicator lights
- 4 modes of limit switch selection for cyclic reversing & adjustable dwelltime
- On-board fissing: AC line input (1.1 & 1.2)
- Cage-clamp terminal blocks
- · Grounding screws

Selection Table

Wadel No.	input Voltage	HP	Armature Amps Gont.	Annature Vollage	Enclosura Type
	I 6 WQ, I-Phase	14161.0	16.0	0 to 90 VDC	NDVA 40912
MCRETCHEARD (L-DA	250 940, 1-Fitosa	152 to 2.3	16.0	C to 150 VDC	NDM 40512

Dimensions: DC3R-12D-4X-010-DN





DC3 DC Drives

Selection Flow Chart



Typical DC3 Power Ratings

Malar HP	AC Input Amos	DC Armature Voltage	DC Annature Anne	Wolor Field Vollage
174	42	\$0/100	2.7	55/100
1/0	3.5	\$9,190	0.5	55/100
108	7.6	99	5.0	56/100
- 176	50	:00	2.5	106/500
1.516	10.8	90	7.5	50/100
×*	2.9	.00	5.8	100/200
10	12.1	90	10.0	50/100
16	6.7	.00	5.0	106/300
12	5.0	.03	7.0	53/100
2.0	11.2	105	9.2	106/500

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Americas Headquarters, 1201 South Second Street, Milwarkse, Wil 53204, USA, 1et (1) 414-382 2000, Fax: (0) 414-382 4444 European Headquarters SA/NV, Rodovari du Scovectin 36, 1120 Brussels, Belgium, Tel: (22) 2.963 0640, Fax: (22) 2.963 0640 Asia Pacilio Headquarters, 27,6 Cilicorp Contra, 19 Whitfield Read, Causeway Day, Terry Kong, Tet (062) 2937 4708, Fax (962) 1946 Reliance Electric Standard Drives Business, 24300 Tungster Read, Claveland, Dric 44117, USA, Tel: (1688 374 570, Fax (218) 288 7095

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