

Series 20H Line Regenerative Digital DC Controls



**5 thru 75Hp
5 thru 300 Hp**

**180-264 VAC - 50/60 Hz
340-528 VAC - 50/60 Hz**

Applications: Constant torque applications. New installations, replacements and original equipment manufacturers (OEM).

Features: Chassis mounting, built-in armature or encoder feedback. High peak current.

Design Specifications

- Three phase, full wave, four quadrant SCR armature control.
- Peak overload capacity of 250-300% (depending on rating)
- Selectable operating modes: Keypad, Standard Run, 15 Speed, Bipolar speed/torque, Serial, Bipolar Hoist, 7 Speed Hoist, process follower
- Motor shaft orient to encoder marker or external switch closure (encoder feedback)
- 15 preset speeds (7 in Hoist Mode.)

Operator Keypad

- Digital Speed Control
- Forward/Reverse Command
- Motor RUN and JOG
- Local/Remote Key
- Stop Command
- 32 Character alpha-numeric display
- Remote mount to 100 feet from control
- NEMA 4X enclosure on keypad

Environmental and Operating Conditions

- Input frequency - 50 or 60Hz $\pm 5\%$
- Service factor - 1.0
- Duty - continuous
- Humidity - 90% max RH non-condensing
- Altitude - 3300 feet max without derate

Protective Features

- Torque proving
- Selectable manual or automatic restart at power loss
- Digital display for fault conditions

Motor Feedback

- Power output: +5VDC, 300 mA max
- Positioning: Buffered encoder pulse train output for position loop control
- Optional feedback: tachometer or resolver through expansion board

Output Ratings	Voltage	DC 0-1.13 times VAC input	
	Input Ratings	Frequency	50 or 60 Hz $\pm 5\%$
		Voltage	200-240 VAC $\pm 10\%$; 380-480 VAC $\pm 10\%$
Control Spec.	Phase	Three phase	
	Impedance	5% maximum	
	Control Method	Full wave-bi-directional regenerative DC control, NEMA type C	
	Speed Setting	$\pm 5\text{VDC}$, 0-5VDC, $\pm 10\text{VDC}$, 0-10VDC, 4-20 mA, digital via keypad, optional RS232/422/485	
	Accel/Decel	0-3600 seconds or s-curve	
	Minimum Speed	0-maximum speed	
	Maximum Speed	0-5000 RPM	
Field Power Supply	Motor Matching	Automatic tuning to motor with manual override	
	Type	Voltage limited, current regulated full wave single phase	
	Voltage	0 to 10-85% of AC line Input in DC volts	
	Current	0.1-15 Amps maximum-standard, 0.1-40 amps maximum-optional	
	Field Economy Level	OFF, 25-100%	
Motor Feedback	Field Forcing Level	100-125% (hoist modes only)	
	Feedback Type	Armature or incremental encoder coupled to motor shaft	
	Pulses/Rev	60-65535 selectable, 1024 standard	
	Voltage Output	2 channel in quadrature, 5VDC differential	
	Marker Pulse	Required for position orientation	
	Power Input	5VDC, 300 mA maximum	
	Maximum Frequency	1 MHz	
	Positioning	Optional buffered encoder pulse train output for position loop controller	
	Optional Feedback	Tachometer or resolver via expansion board	
	Protective Functions	Control Trip	Missing control power, over current armature over voltage, motor overspeed over temperature (motor & control), field loss, encoder tach or resolver loss, phase loss, motor overload and overcurrent
Fusing		Standard input line, armature and field power supply fuses	
External Output		LED indicator for trip conditions, 4 assignable logic outputs - 30VDC Max, 2 assignable analog outputs 0-5VDC	
LCD Display	Running	Motor RPM, output current, voltage (selectable)	
	Setting	Parameter values for setup and review	
	Trip	Separate message for each trip, last 31 trips retained in memory	
Ambient Conditions	Temperature	0-40°C for UL listing	
	Cooling	Forced air included when required	

NOTE: Use of DC tach for feedback requires DC Tachometer Interface Board, catalog number EXB006A01. Other expansion boards are available, see pages 301-302.

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Hp	Input Volt	Armature Output Current		Catalog Number	List Price	Mult. Sym.	Chassis Size
		Amps Cont	Amps Peak				
230 Volt Input - 240 VDC Output							
5	230	20	60	BC20H205-CL	6,716	E1	A
10	230	40	120	BC20H210-CL	6,716	E1	A
15	230	60	150	BC20H215-CL	6,716	E1	A
20	230	75	190	BC20H220-CL	7,039	E1	B
25	230	100	250	BC20H225-CL	7,927	E1	B
40	230	140	420	BC20H240-CL	10,281	E1	C
50	230	180	480	BC20H250-CL	11,124	E1	C
60	230	210	540	BC20H260-CL	11,763	E1	C
75	230	270	680	BC20H275-CL	14,430	E1	C
460 Volt Input - 500 VDC Output							
5, 7.5, 10	460	20	60	BC20H410-CL	7,068	E1	A
15, 20	460	40	120	BC20H420-CL	7,068	E1	A
25, 30	460	60	150	BC20H430-CL	7,295	E1	A
40	460	75	190	BC20H440-CL	7,618	E1	B
50	460	100	250	BC20H450-CL	8,448	E1	B
60, 75	460	140	420	BC20H475-CL	11,689	E1	C
100	460	180	480	BC20H4100-CL	12,613	E1	C
125	460	210	530	BC20H4125-CL	14,065	E1	C
150	460	270	680	BC20H4150-CL	15,384	E1	C
200	460	350	875	BC20H4200-CL	18,494	E1	D
250	460	420	1050	BC20H4250-CL	23,162	E1	D
300	460	510	1250	BC20H4300-CL	25,373	E1	D

OPTIONS: See pages 301-302 for optional expansion Boards including Tachometer Feedback, RS-232, RS-422, RS-485, Resolver, Interface, etc. 40 Amp field power supply. V0073400

Dimensions in/(mm)

Size	Hp	Outside Height	Width	Depth	Mounting		Ap'x Shpg. Wgt.
					Height	Width	
A	ALL	20.60/(523.2)	11.00/(279.4)	9.87/(250.7)	18.00/(457.2)	10.25/(260.4)	39
B 230V	ALL	25.70/(652.8)	11.00/(279.4)	9.84/(249.9)	23.87/(606.3)	10.25/(260.4)	67
B 460V	ALL	26.75/(679.5)	11.00/(279.4)	9.84/(249.9)	24.94/(633.5)	10.25/(260.4)	69
C 230V	40-60	26.50/(673.1)	11.75/(298.5)	10.63/(270.0)	23.90/(607.0)	10.25/(260.4)	80
C 460V	75-100	27.25/(692.2)	11.75/(298.5)	10.63/(270.0)	24.65/(626.1)	10.25/(260.4)	84
C 230V	75	33.00/(838.2)	11.75/(298.5)	10.63/(270.0)	23.90/(607.6)	10.25/(260.4)	94
C 460V	125-200	33.75/(857.3)	11.75/(298.5)	10.63/(270.0)	24.65/(626.1)	10.25/(260.4)	97
D	ALL	43.80/(1112.5)	16.87/(428.5)	12.43/(315.7)	39.25/(997.0)	13.75/(349.3)	272

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes