VersaFlex DC and Regen DC motor controls

- **VersaFlex DC control provides unidirectional (single quadrant) digital control**
- **VersaFlex Regen DC provides bidirectional (4 quadrant) regenerative control**
- **220 to 500V line input (±10%) and 50 or 60 Hz input for worldwide use**
- **Operator keypad is remote mountable to 10 feet (3m) for optimum ergonomic placement**
- **Expansion boards provide connection to RS-485, Modbus, Profibus DP, DeviceNet networks**

VersaFlex controls combine digital motor control circuitry with reliable SCR power devices to provide advanced DC motor control and protection. Onboard operator control allows easy programming of control set-up and operating parameters. Optional feedback expansion boards enhance drive capabilities by allowing the control to continuously monitor a motor-mounted AC or DC tachometer or incremental encoder. Controls from 35 to 165A continuous include built-in line contactor, control logic supply, and fuses (line, armature, field supply, and control logic). Other options include internally mounted blower motor starter, and communications boards. VersaFlex DC and Regen DC controls can be configured using Workbench D (page 6).

Key features of VersaFlex digital DC controls

Output rating	**Output voltage:** DC; 0-1.2 times VAC input **Current limit:** Adjustable 150% of rated current for 30 seconds, 200% for 10 seconds (250% for 3 seconds in Hoist Mode)
Input rating	**Voltage:** 220 - 500 VAC ± 10% **Frequency:** 50 or 60 Hz ± 5% **Phase:** 3 phase **Control logic supply:** Internally connected with voltage jumpers on sizes 1, 2. Externally connected for 115 VAC on sizes 3 and larger
Control specification	**Impedance:** 5% maximum **Method – DC:** NEMA type C full wave unidirectional DC control **Method – DC:** NEMA type C full wave bidirectional regenerative DC control **Speed setting:** ±10 VDC, 0-10 VDC, 4-20 mA. Digital via keypad. Optional by expansion board: RS485, ProfibusDP or DeviceNet **Accel./decel.:** 0-600 seconds **Min. speed:** 0 – 100% rated speed **Max. speed:** 0 – 200% rated speed **Motor matching:** Automatic tuning to motor with manual override
Field power supply	**Type:** Full wave fixed voltage or current regulated **Voltage:** DC; 0 to 90% of line input voltage **Current:** 4A on size 1, 10A on size 2 and 3, 30A on sizes 4 and 5 **Field economy level:** Off or 50%
Motor feedback	**Standard:** Armature feedback **Optional:** Optional with expansion boards: DC or AC tachometer (200V max without dropping resistor), incremental encoder or pulse generator (5 or 12VDC)
Protective functions & facilities	**Control trip:** Missing control power; over-current; armature over-voltage; functions motor over-speed; over temperature (motor and control); phase functions loss; motor overload and over-current; field loss; encoder or tachometer loss **Fusing:** Standard input line, armature, field and control logic (sizes 1 and 2 only); high energy MOVs **External output:** LED indicator for trip conditions, 3 assignable logic outputs – 30VDC max, 2 assignable 3 analog outputs ±10VDC (2 assignable)
LCD display	**Running:** Motor RPM, output current, voltage (selectable) **Setting:** Parameter values for setup and review **Trip:** Separate message for each trip, last trip retained in memory
Ambient	**Operating temperature:** 0-45°C for size 1 and 2, 0-40°C for sizes 3, 4, 5. Output conditions current values should be de-rated at 1% per degree C above rated temperature up to a max. of 55°C **Storage temperature:** -25 to +55°C, shipping temperature -25 to +70°C **Altitude:** Up to 1640 ft (500m) above sea level without derating **Cooling:** Forced air included on sizes 3, 4, 5 (separate 115VAC 1ph power required)
Approvals	**UL / CUL:** UL listed to US and Canadian safety standard UL508C (up to 675A – larger ratings pending) **CE:** Marked to EN50178 (Safety, Low Voltage Directive); EN50081-2 (1992) (EMC emissions, industrial environment with external filter fitted); EN50082-2 (1995) (EMC immunity, industrial environment)

Ordering information

Rating HP (kW) 230V	Rating HP (kW) 460V	Input voltage	Armature output cont./peak (A)	VersaFlex DC catalog #	VersaFlex Regen DC catalog #	Size	Notes: Internal contactor	Notes: Logic supply
10 (7.46)	20 (14.9)	230-460	35 / 53	BC29D7A35-CO7	BC30D7A35-CO7	1	Yes	Internal
20 (14.9)	40 (29.84)	230-460	70 / 105	BC29D7A70-CO7	BC30D7A70-CO7	2	Yes	Internal
30 (22.38)	60 (44.76)	230-460	110 / 165	BC29D7A110-CO7	BC30D7A110-CO7	2	Yes	Internal
50 (37.3)	100 (74.6)	230-460	165 / 248	BC29D7A165-CO7	BC30D7A165-CO7	2	Yes	Internal
75 (55.95)	150 (111.9)	230-460	243 / 365	BC29D7A243-CO1	BC30D7A243-CO1	3	No	Ext. 115
100 (74.6)	200 (149.2)	230-460	380 / 570	BC29D7A380-CO1	BC30D7A380-CO1	4	No	Ext.115
150 (111.9)	300 (223.8)	230-460	500 / 750	BC29D7A500-CO1	BC30D7A500-CO1	4	No	Ext. 115
200 (149.2)	400 (298.4)	230-460	725 / 1088	BC29D7A725-CO1	BC30D7A725-CO1	4	No	Ext. 115
250 (186.5)	500 (373)	230-460	830 / 1245	BC29D7A830-CO1	BC30D7A830-CO1	4	No	Ext. 115
300 (223.8)	600 (447.6)	230-460	1580 / 2370	BC29D4A1580-CO1	BC30D4A1580-CO1	5	No	Ext.115

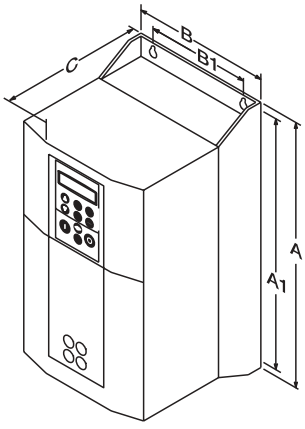
VersaFlex digital DC motor controls

Expansion boards

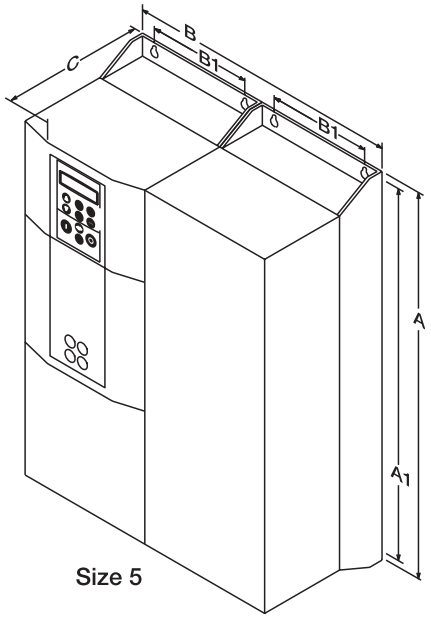
Motor feedback expansion boards allow the control to continuously monitor motor operation. Several options are available to allow connection of tachometers and encoders to VersaFlex DC and Regen DC controls. Bus communications expansion boards allow the control to be connected to various automation protocols:

Catalog #	Description
EXB01A01	Tachometer – allows connection of AC or DC tachometers for better speed regulation. Full speed tachometer voltages are allowed up to 200V. AC tachometers provide speed information only; DC tachometers provide speed and direction.
EXB02A01	5V encoder – provides power supply and connections to a 5V encoder for better speed regulation.
EXB02A02	12V encoder – provides power supply and connections to a 12V encoder for better speed regulation.
EXB03A01	Modbus communications expansion board.
EXB04A01	Profibus DP communications expansion board.
EXB05A01	DeviceNet communications expansion board.

Mechanical data



Size 1, 2, 3, 4



Size 5

NOTE: For safe operation, allow a clearance distance between each control and on all sides of each control.

Enclosure dimensions

Size	Rating	Outside inches (mm)			Mounting inches (mm)		Weight
	(A)	Height – A	Width – B	Depth – C	Height – A1	Width – B1	approx. lb (kg)
1	15-35	14.8 (375)	7.9 (200)	8.7 (220)	14.2 (360)	5.5 (140)	14 (6.4)
2	40-165	17.1 (434)	7.9 (200)	11.5 (292)	16.5 (418)	5.5 (140)	23 (10.5)
3	180	19.1 (485)	9.8 (250)	7.1 (180)	15.7 (400)	7.9 (200)	44 (20)
3	270	19.7 (500)	11.8 (300)	8.3 (210)	15.7 (400)	7.9 (200)	44 (20)
4	380-500	27.6 (700)	10.0 (253)	14.2 (358)	26.8 (680)	5.9 (150)	71 (32.2)
4	725-830	27.6 (700)	10.0 (253)	14.2 (358)	26.8 (680)	5.9 (150)	97 (44)
5	1580	27.6 (700)	20.0 (506)	14.2 (358)	26.8 (680)	5.9 (150)	200 (90.8)

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