

Appendix B Accessories

B.1 All Brake Resistors & Brake Units Used in AC Motor Drives

Note: Please only use DELTA resistors and recommended values. Other resistors and values will void Delta's warranty. Please contact your nearest Delta representative for use of special resistors.

The brake unit should be at least 10 cm away from AC motor drive to avoid possible interference.

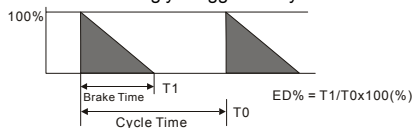
Refer to the "Brake unit Module User Manual" for further details.

Voltage	Applicable Motor		AC Drive Part No.	Full Load Torque KG-M	Equivalent Resistor Value (recommended)	Brake Unit Part No. and Quantity	Brake Resistors Part No. and Quantity		Brake Torque 10%ED	Min. Equivalent Resistor Value for each AC Motor Drive
	hp	kW								
115V Series	0.25	0.2	VFD002E11A/11C/11P	0.110	200W 250Ω	BUE-20015 1	BR200W250	1	320	200Ω
			VFD002E11T		200W 250Ω					
	0.5	0.4	VFD004E11A/11C/11P	0.216	200W 250Ω	BUE-20015 1	BR200W250	1	170	100Ω
			VFD004E11T		200W 250Ω					
1	0.75	VFD007E11A/11C/11P	0.427	200W 150Ω		BR200W150	1	140	80Ω	
230V Series	0.25	0.2	VFD002E21A/21C/21P/23A/23C/23P	0.110	200W 250Ω	BUE-20015 1	BR200W250	1	320	200Ω
			VFD002E21T/23T		200W 250Ω					
	0.5	0.4	VFD004E21A/21C/21P/23A/23C/23P	0.216	200W 250Ω	BUE-20015 1	BR200W250	1	170	100Ω
			VFD004E21T/23T		200W 250Ω					
	1	0.75	VFD007E21A/21C/21P/23A/23C/23P	0.427	200W 150Ω	BUE-20015 1	BR200W150	1	140	80Ω
			VFD007E21T/23T		200W 150Ω					
	2	1.5	VFD015E21A/21C	0.849	300W 85Ω		-		125	40Ω
			VFD015E23T		300W 85Ω	-		125	80Ω	
			VFD015E23A/23C/23P		300W 85Ω	BUE-20015 1	-		125	80Ω
	3	2.2	VFD022E21A/21C/23A/23C	1.262	600W 50Ω		-		120	40Ω
	5	3.7	VFD037E23A/23C	2.080	600W 50Ω		-		107	40Ω
	7.5	5.5	VFD055E23A/23C	3.111	800W 37.5Ω		-		85	34Ω
	10	7.5	VFD075E23A/23C	4.148	1200W 25Ω		-		90	24Ω
	15	11	VFD110E23A/23C	6.186	1200W 8Ω		BR1K2W008	2	100	8Ω
20	15	VFD150E23A/23C	8.248	3000W 10Ω		BR1K5W005	2	119	10Ω	
460V Series	0.5	0.4	VFD004E43A/43C/43P	0.216	300W 400Ω	BUE-40015 1	BR300W400	1	400	400Ω
			VFD004E43T		300W 400Ω					
	1	0.75	VFD007E43A/43C/43P	0.427	300W 400Ω	BUE-40015 1	BR300W400	1	200	200Ω
			VFD007E43T		300W 400Ω					
	2	1.5	VFD015E43A/43C/43P	0.849	400W 300Ω	BUE-40015 1	BR200W150	2	140	160Ω
			VFD015E43T		400W 300Ω					
	3	2.2	VFD022E43A/43C	1.262	600W 200Ω		BR300W400	2	140	140Ω
	5	3.7	VFD037E43A/43C	2.080	750W 140Ω		-		125	96Ω
	7.5	5.5	VFD055E43A/43C	3.111	1100W 96Ω		-		120	96Ω
	10	7.5	VFD075E43A/43C	4.148	1500W 69Ω		-		125	69Ω
	15	11	VFD110E43A/43C	6.186	2000W 53Ω		-		108	53Ω
	20	15	VFD150E43A/43C	8.248	4800W 32Ω		BR1K2W008	4	151	31Ω
	25	18.5	VFD185E43A/43C	10.281	4800W 32Ω		BR1K2W008	4	121	31Ω
	30	22	VFD220E43A/43C	12.338	4800W 32Ω		BR1K2W008	4	100	31Ω

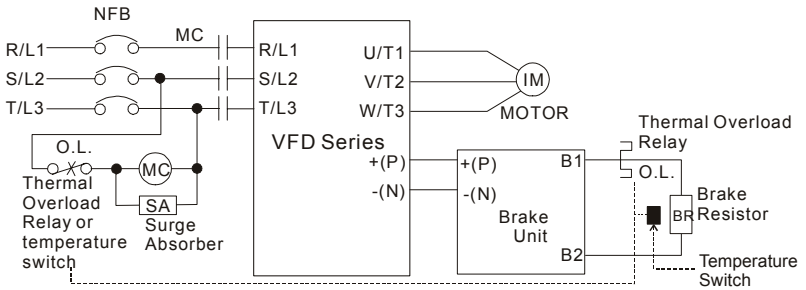
 **NOTE**

1. Please select the brake unit and/or brake resistor according to the table. “-” means no Delta product. Please use the brake unit according to the Equivalent Resistor Value.
2. If damage to the drive or other equipment is due to the fact that the brake resistors and the brake modules in use are not provided by Delta, the warranty will be void.
3. Take into consideration the safety of the environment when installing the brake resistors.
4. If the minimum resistance value is to be utilized, consult local dealers for the calculation of the power in Watt.
5. Please select thermal relay trip contact to prevent resistor over load. Use the contact to switch power off to the AC motor drive!
6. When using more than 2 brake units, equivalent resistor value of parallel brake unit can't be less than the value in the column “Minimum Equivalent Resistor Value for Each AC Drive” (the right-most column in the table).
7. Please read the wiring information in the user manual of the brake unit thoroughly prior to installation and operation.
8. When using with the brake resistor or brake unit, it needs to disable over-voltage stall prevention function (set Pr.06.00 to 0). It is recommended to disable AVR (auto voltage regulation) function (set Pr.08.18 to 1).
9. Definition for Brake Usage ED%

Explanation: The definition of the braking usage ED(%) is for assurance of enough time for the brake unit and brake resistor to dissipate away heat generated by braking. When the brake resistor heats up, the resistance would increase with temperature, and brake torque would decrease accordingly. Suggested cycle time is one minute



10. For safety reasons, install a thermal overload relay between brake unit and brake resistor. Together with the magnetic contactor (MC) in the mains supply circuit to the drive it offers protection in case of any malfunctioning. The purpose of installing the thermal overload relay is to protect the brake resistor against damage due to frequent brake or in case the brake unit is continuously on due to unusual high input voltage. Under these circumstances the thermal overload relay switches off the power to the drive. Never let the thermal overload relay switch off only the brake resistor as this will cause serious damage to the AC Motor Drive.



Note1: When using the AC drive with DC reactor, please refer to wiring diagram in the AC drive user manual for the wiring of terminal +(P) of Brake unit.

Note2: **Do NOT** wire terminal -(N) to the neutral point of power system.