

# GS1, GS2, and GS3/DURAPULSE Accessories – Fusing

## Fusing Overview

Circuit protection devices are essential to prevent costly damage to your AC drive application equipment. Fuses and fuse kits are available from AUTOMATIONDIRECT for the GS1, GS2, and GS3/DURAPULSE AC drives.

The fuse specifications are shown in the table below. Each fuse kit consists of one fuse block and fuses sized to handle the inrush current while providing superior protection for the corresponding GS2 or DURAPULSE AC drive. The larger drives in the DURAPULSE family require three fuse kits (one per phase). Their part numbers are marked in the table with a double

asterisk.

Replacement fuses are also available, and listed in the table next to their companion fuse kits.

Fuse Kit Specifications for GS1, GS2, and GS3/DURApulse 115–460V Drives												
Fuse Kit	Price	Fuse					Wire Range	SCCR	Replacement Fuses (5 fuses per package)	Price		
		Block Type	Type	Rating	Bolt Torque (lb-in)	Block Dimensions						
<a href="#">GS-10P2-FKIT-1P*</a>	Retired	Two-pole	A3T	300V@20A	n/a (spring clips)	Figure 1	Al/Cu #2-14	200 kA	<a href="#">GS-10P2-FUSE-1P</a>	Retired		
<a href="#">GS-10P5-FKIT-1P*</a>	Retired			300V@30A					<a href="#">GS-10P5-FUSE-1P</a>	Retired		
<a href="#">GS-11P0-FKIT-1P*</a>	Retired			300V@50A					<a href="#">GS-11P0-FUSE-1P</a>	Retired		
<a href="#">GS-20P2-FKIT-1P</a>	Retired			300V@15A					<a href="#">GS-20P2-FUSE-1P</a>	Retired		
<a href="#">GS-20P2-FKIT-3P</a>	Retired	Three-pole		300V@10A		Figure 2			<a href="#">GS-20P2-FUSE-3P</a>	Retired		
<a href="#">GS-20P5-FKIT-1P</a>	Retired	Two-pole		300V@20A		Figure 1			<a href="#">GS-20P5-FUSE-1P</a>	Retired		
<a href="#">GS-20P5-FKIT-3P</a>	Retired	Three-pole		300V@10A		Figure 2			<a href="#">GS-20P5-FUSE-3P</a>	Retired		
<a href="#">GS-21P0-FKIT-1P</a>	Retired	Two-pole		300V@30A		Figure 1			<a href="#">GS-21P0-FUSE-1P</a>	Retired		
<a href="#">GS-21P0-FKIT-3P</a>	Retired	Three-pole		300V@20A		Figure 2			<a href="#">GS-21P0-FUSE-3P</a>	Retired		
<a href="#">GS-22P0-FKIT-1P</a>	Retired	Two-pole		300V@45A		Figure 1			<a href="#">GS-22P0-FUSE-1P</a>	Retired		
<a href="#">GS-22P0-FKIT-3P</a>	Retired	Three-pole		300V@25A		Figure 2			<a href="#">GS-22P0-FUSE-3P</a>	Retired		
<a href="#">GS-23P0-FKIT-1P</a>	Retired	Two-pole		300V@60A		Figure 1			<a href="#">GS-23P0-FUSE-1P</a>	Retired		
<a href="#">GS-23P0-FKIT-3P</a>	Retired	Three-pole	300V@40A	Figure 2	<a href="#">GS-23P0-FUSE-3P</a>	Retired						
<a href="#">GS-25P0-FKIT</a>	Retired		300V@60A	<a href="#">GS-25P0-FUSE</a>	Retired							
<a href="#">GS-27P5-FKIT †</a>	Retired		300V@100A	72	Figure 9	<a href="#">GS-27P5-FUSE</a>	Retired					
<a href="#">- †</a>			300V@125A			<a href="#">GS-2010-FUSE</a>	Retired					
<a href="#">- †</a>			300V@175A			<a href="#">GS-2015-FUSE</a>	Retired					
<a href="#">GS-2020-FKIT</a>	Retired		300V@250A	228	Figure 5	Al/Cu: 600kcmil-#2	<a href="#">GS-2020-FUSE</a>	Retired				
<a href="#">GS-2025-FKIT</a>	Retired		300V@300A	228			<a href="#">GS-2025-FUSE</a>	Retired				
<a href="#">GS-2030-FKIT</a>	Retired		300V@350A	228			<a href="#">GS-2030-FUSE</a>	Retired				
<a href="#">GS-2040-FKIT **</a>	Retired		One-pole	300V@450A	360	Figure 6 **	Al/Cu: (2) 600kcmil-#2	<a href="#">GS-2040-FUSE</a>	Retired			
<a href="#">GS-2050-FKIT **</a>	Retired		One-pole	300V@500A	360			<a href="#">GS-2050-FUSE</a>	Retired			
<a href="#">GS-41P0-FKIT</a>	Retired	Three-pole	A6T	600V@10A	n/a (spring clips)	Figure 7	Al/Cu #2-14	200 kA	<a href="#">GS-41P0-FUSE</a>	Retired		
<a href="#">GS-42P0-FKIT</a>	Retired			600V@15A					<a href="#">GS-42P0-FUSE</a>	Retired		
<a href="#">GS-43P0-FKIT</a>	Retired			600V@20A					<a href="#">GS-43P0-FUSE</a>	Retired		
<a href="#">GS-45P0-FKIT</a>	Retired			600V@30A					<a href="#">GS-45P0-FUSE</a>	Retired		
<a href="#">GS-47P5-FKIT</a>	Retired			600V@50A		Figure 8			<a href="#">GS-47P5-FUSE</a>	Retired		
<a href="#">GS-4010-FKIT</a>	Retired			600V@70A		72			Figure 9	Al/Cu: Al/Cu 2/0-#6	<a href="#">GS-4010-FUSE</a>	Retired
<a href="#">GS-4015-FKIT</a>	Retired			600V@90A		72					<a href="#">GS-4015-FUSE</a>	Retired
<a href="#">GS-4020-FKIT</a>	Retired			600V@125A		132			Figure 10	Al/Cu: 350kcmil-#6	<a href="#">GS-4020-FUSE</a>	Retired
<a href="#">GS-4025-FKIT</a>	Retired			600V@150A		132					<a href="#">GS-4025-FUSE</a>	Retired
<a href="#">GS-4030-FKIT</a>	Retired			600V@175A		132					<a href="#">GS-4030-FUSE</a>	Retired
<a href="#">GS-4040-FKIT **</a>	Retired	One-pole		600V@225A		228			Figure 11 **	Al/Cu: 600kcmil-#2	<a href="#">GS-4040-FUSE</a>	Retired
<a href="#">GS-4050-FKIT **</a>	Retired			600V@250A		228					<a href="#">GS-4050-FUSE</a>	Retired
<a href="#">GS-4060-FKIT **</a>	Retired		600V@350A	228	<a href="#">GS-4060-FUSE</a>	Retired						
<a href="#">GS-4075-FKIT **</a>	Retired		600V@400A	228	<a href="#">GS-4075-FUSE</a>	Retired						
<a href="#">GS-4100-FKIT **</a>	Retired		600V@600A	360	Figure 12 **	Al/Cu: (2) 600kcmil-#2	<a href="#">GS-4100-FUSE</a>	Retired				

**NOTES:**

- \* – Single phase 115V fuse kits are for use only with GS1 and GS2 drives.
- \*\* – Kit includes three single-pole fuse blocks and three fuses.
- † – GS-2010-FKIT and GS-2015-FKIT are no longer available. Please use GS-27P5-FKIT instead.

# GS2 and GS3/DURAPULSE Accessories – Fusing

## Fuse Block Dimensions

Units = inches

Figure 1

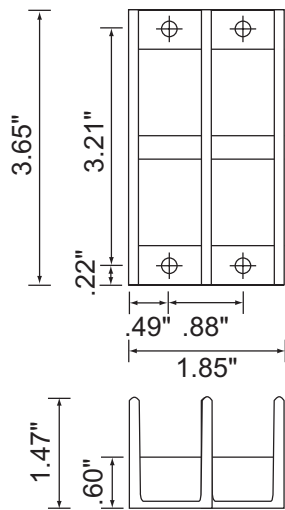


Figure 2

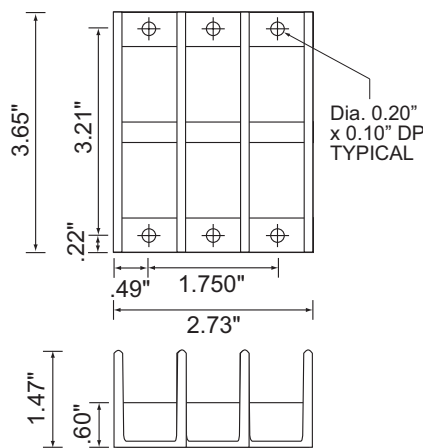


Figure 3

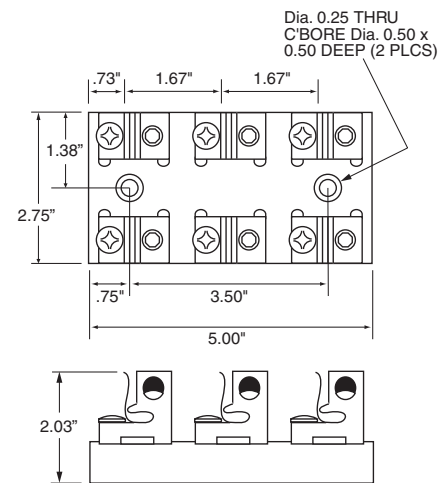


Figure 4

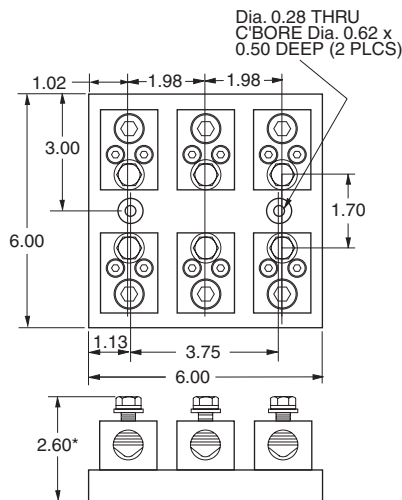


Figure 5

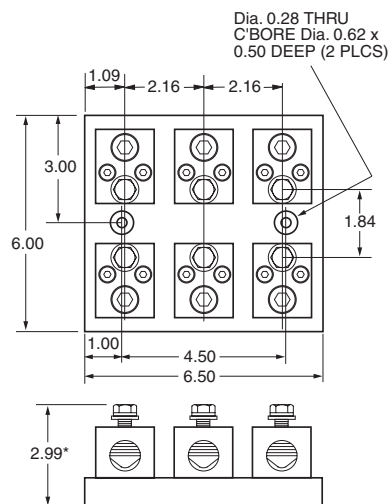
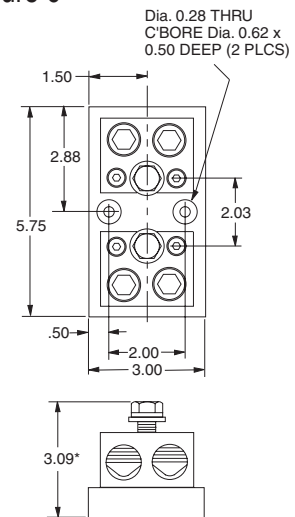


Figure 6



# GS2 and GS3/DURAPULSE Accessories – Fusing

## Fuse Block Dimensions

Units = inches

Figure 7

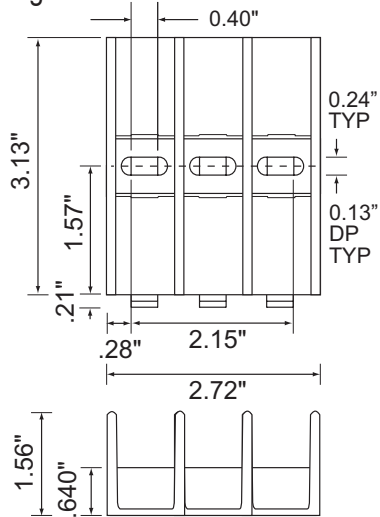


Figure 8

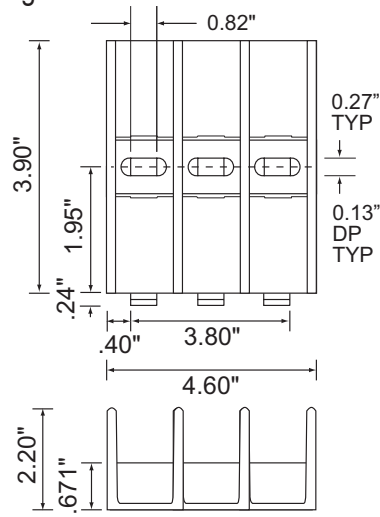


Figure 9

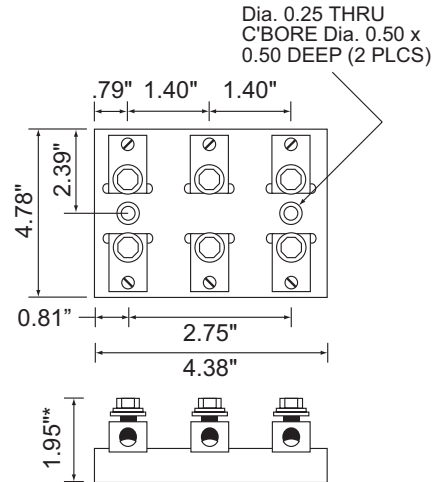


Figure 10

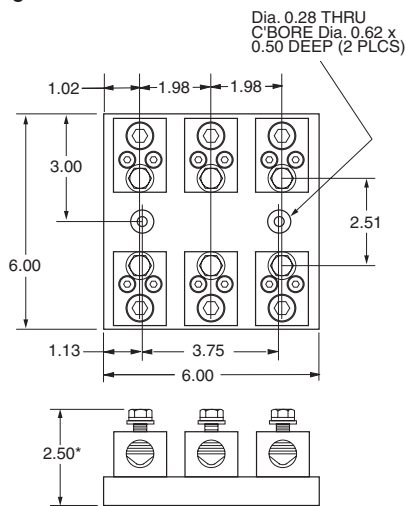


Figure 11

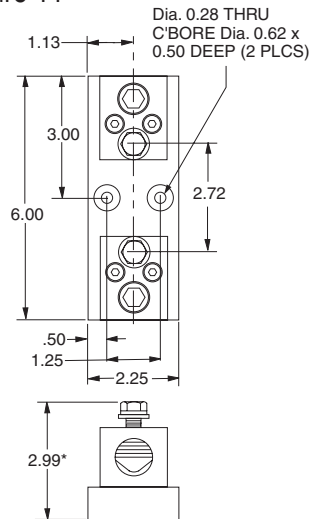
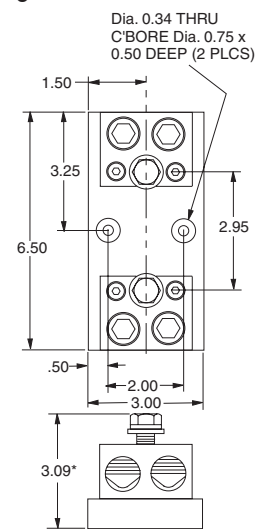


Figure 12



\* Height includes nominal fuse blade thickness.

# GS4 DURAPULSE Accessories – Fusing

## Fuse Selection for GS4 AC Drives

The fuses shown in the table below are available from [AutomationDirect](http://AutomationDirect.com). Further information, including dimensional information, is available at [AutomationDirect.com](http://AutomationDirect.com).

Fuse Specification Chart GS4 DURAPULSE Drives														
Drive Model	For Three-Phase Input Power							For Single-Phase Input Power						
	HP	Input Power			Input Fuse ***			HP	Input Power			Input Fuse ***		
		Ø	Volts	GS4 Amps	Fuse Amps	Fast Acting Class T	Edison Class J*		Ø	Volts	GS4 Amps	Fuse Amps	Fast Acting Class T	Edison Class J*
<a href="#">GS4-21P0</a>	1	3	230	6.4	10	<a href="#">TJN10</a>	<a href="#">JHL10</a>	0.5	1	230	6.4	10	<a href="#">TJN10</a>	<a href="#">JHL10</a>
<a href="#">GS4-22P0</a>	2	3	230	12	15	<a href="#">TJN15</a>	<a href="#">JHL15</a>	0.75	1	230	9.7	15	<a href="#">TJN15</a>	<a href="#">JHL15</a>
<a href="#">GS4-23P0</a>	3	3	230	16	25	<a href="#">TJN25</a>	<a href="#">JHL25</a>	1	1	230	15	20	<a href="#">TJN20</a>	<a href="#">JHL20</a>
<a href="#">GS4-25P0</a>	5	3	230	20	35	<a href="#">TJN35</a>	<a href="#">JHL35</a>	2	1	230	20	30	<a href="#">TJN30</a>	<a href="#">JHL30</a>
<a href="#">GS4-27P5</a>	7.5	3	230	28	50	<a href="#">TJN50</a>	<a href="#">JHL50</a>	3	1	230	26	40	<a href="#">TJN40</a>	<a href="#">JHL40</a>
<a href="#">GS4-2010</a>	10	3	230	36	70	<a href="#">TJN70</a>	<a href="#">JHL70</a>	3	1	230	26	40	<a href="#">TJN40</a>	<a href="#">JHL40</a>
<a href="#">GS4-2015</a>	15	3	230	52	100	<a href="#">TJN100</a>	<a href="#">JHL100</a>	5	1	230	40	70	<a href="#">TJN70</a>	<a href="#">JHL70</a>
<a href="#">GS4-2020</a>	20	3	230	72	125	<a href="#">TJN125</a>	<a href="#">JHL125</a>	7.5	1	230	58	100	<a href="#">TJN100</a>	<a href="#">JHL100</a>
<a href="#">GS4-2025</a>	25	3	230	83	150	<a href="#">TJN150</a>	<a href="#">JHL150</a>	10	1	230	76	125	<a href="#">TJN125</a>	<a href="#">JHL125</a>
<a href="#">GS4-2030</a>	30	3	230	99	175	<a href="#">TJN175</a>	<a href="#">JHL175</a>	10	1	230	76	125	<a href="#">TJN125</a>	<a href="#">JHL125</a>
<a href="#">GS4-2040**</a>	40	3	230	124	175	<a href="#">TJN175</a>	<a href="#">JHL175</a>	10	1	230	63	90	<a href="#">TJN90</a>	<a href="#">JHL90</a>
<a href="#">GS4-2050**</a>	50	3	230	143	200	<a href="#">TJN200</a>	<a href="#">JHL200</a>	10	1	230	63	90	<a href="#">TJN90</a>	<a href="#">JHL90</a>
<a href="#">GS4-2060</a>	60	3	230	171	250	<a href="#">TJN250</a>	<a href="#">JHL250</a>	15	1	230	94	150	<a href="#">TJN150</a>	<a href="#">JHL150</a>
<a href="#">GS4-2075</a>	75	3	230	206	300	<a href="#">TJN300</a>	<a href="#">JHL300</a>	20	1	230	124	175	<a href="#">TJN175</a>	<a href="#">JHL175</a>
<a href="#">GS4-2100</a>	100	3	230	245	350	<a href="#">TJN350</a>	<a href="#">JHL350</a>	25	1	230	143	200	<a href="#">TJN200</a>	<a href="#">JHL200</a>
<a href="#">GS4-41P0</a>	1	3	460	4.3	6	<a href="#">TJS6</a>	<a href="#">JHL6</a>	single-phase input power not applicable for 460V						
<a href="#">GS4-42P0</a>	2	3	460	5.9	10	<a href="#">TJS10</a>	<a href="#">JHL10</a>							
<a href="#">GS4-43P0</a>	3	3	460	8.7	15	<a href="#">TJS15</a>	<a href="#">JHL15</a>							
<a href="#">GS4-45P0</a>	5	3	460	14	20	<a href="#">TJS20</a>	<a href="#">JHL20</a>							
<a href="#">GS4-47P5</a>	7.5	3	460	17	25	<a href="#">TJS25</a>	<a href="#">JHL25</a>							
<a href="#">GS4-4010</a>	10	3	460	20	35	<a href="#">TJS35</a>	<a href="#">JHL35</a>							
<a href="#">GS4-4015</a>	15	3	460	26	45	<a href="#">TJS45</a>	<a href="#">JHL45</a>							
<a href="#">GS4-4020</a>	20	3	460	35	60	<a href="#">TJS60</a>	<a href="#">JHL60</a>							
<a href="#">GS4-4025</a>	25	3	460	40	70	<a href="#">TJS70</a>	<a href="#">JHL70</a>							
<a href="#">GS4-4030</a>	30	3	460	47	90	<a href="#">TJS90</a>	<a href="#">JHL90</a>							
<a href="#">GS4-4040**</a>	40	3	460	63	125	<a href="#">TJS100</a>	<a href="#">JHL100</a>							
<a href="#">GS4-4050</a>	50	3	460	74	100	<a href="#">TJS110</a>	<a href="#">JHL110</a>							
<a href="#">GS4-4060</a>	60	3	460	101	125	<a href="#">TJS150</a>	<a href="#">JHL150</a>							
<a href="#">GS4-4075</a>	75	3	460	114	150	<a href="#">TJS150</a>	<a href="#">JHL150</a>							
<a href="#">GS4-4100</a>	100	3	460	157	200	<a href="#">TJS200</a>	<a href="#">JHL200</a>							
<a href="#">GS4-4125</a>	125	3	460	167	250	<a href="#">TJS250</a>	<a href="#">JHL250</a>							
<a href="#">GS4-4150</a>	150	3	460	207	300	<a href="#">TJS300</a>	<a href="#">JHL300</a>							
<a href="#">GS4-4175</a>	175	3	460	240	350	<a href="#">TJS350</a>	<a href="#">JHL350</a>							
<a href="#">GS4-4200</a>	200	3	460	300	450	<a href="#">TJS450</a>	<a href="#">JHL450</a>							
<a href="#">GS4-4250</a>	250	3	460	380	500	<a href="#">TJS500</a>	<a href="#">JHL500</a>							
–	–						Fast Acting Current Limiting Class L							
<a href="#">GS4-4300</a>	300	3	460	400	700	<a href="#">LCU700</a>								

\* High-speed Class J

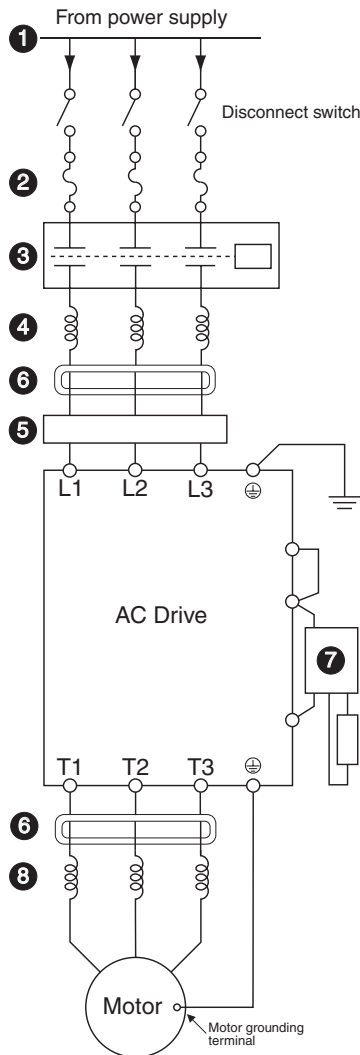
\*\* Includes DC choke

\*\*\* The fuses listed above are available from [AutomationDirect.com](http://AutomationDirect.com). (Individual web links are associated with each part number listed above.)

# AC Drives Optional Accessories – Overview

## Drive Accessories

(not all accessories are applicable for every drive model)



## 1 Power Supply

Please follow the specific power supply requirements as detailed in the specific drive manual.

## 2 Fuses

Input fuses protect the AC drive from excessive input current due to line surges, short circuits, and ground faults. They are recommended for all installations and may be required for UL-listed installations.

## 3 Contactor (Optional)

Do not use a contactor or disconnect switch for run/stop control of the AC drive and motor. This will reduce the operating life cycle of the AC drive. Cycling a power circuit switching device while the AC drive is in run mode should be done only in emergency situations.

## 4 Input Line Reactor (Optional)

See the Line Reactors section at [www.automationdirect.com](http://www.automationdirect.com) for more information.

Input line reactors protect the AC drive from transient overvoltage conditions, typically caused by utility capacitor switching. The input line reactor also reduces the harmonics associated with AC drives. Input line reactors are recommended for all installations.

## 5 EMI filter (Optional)

See the EMI Filters section at [www.automationdirect.com](http://www.automationdirect.com) for more information.

Input EMI filters reduce electromagnetic interference or noise on the input side of the AC drive. They are required for CE compliance and recommended for installations prone to or sensitive to electromagnetic interference.

## 6 RF filter (Optional)

RF filters reduce the radio frequency interference or noise on the input or output side of the inverter.

## 7 Braking Unit and/or Braking Resistor (Optional)

Dynamic braking allows the AC drive to produce additional braking (stopping) torque. AC drives can typically produce between 15% & 20% braking torque without the addition of any external components. The addition of optional braking may be required for applications that require rapid deceleration or high inertia loads.

## 8 Output Load Reactor or Voltage Time (dV/dT) Filter (Optional)

Output line reactors protect the motor insulation against AC drive short circuits and IGBT reflective wave damage, and also "smooth" the motor current waveform, allowing the motor to run cooler. They are **recommended for operating "noninverter-duty" motors and when the length of wiring between the AC drive and motor is less than 100 feet.**

**Voltage Time filters provide enhanced protection for motors with distances up to 1,000 feet.**

Voltage Time filters provide even more protection against wave reflection and reduce common mode noise. They are recommended when the length of wiring between the AC drive and motor is from 100 feet up to 1,000 feet.

See [www.automationdirect.com](http://www.automationdirect.com) for specific product offerings.