

GS/DURAPULSE Accessories – Braking Resistors

Overview

Braking resistors are used to increase the control torque of the AC drive, for frequently repeated ON-OFF cycles of the AC drive, or for decelerating a load with large inertia.



FOR DURAPULSE DRIVE MODELS 20 HP AND ABOVE, A DYNAMIC BRAKING UNIT MUST BE USED IN CONJUNCTION WITH THE BRAKING RESISTOR, AS SHOWN IN THE DURAPULSE AC DRIVE BRAKING UNITS TABLE.



GS-25P0-BR



GS-27P5-BR

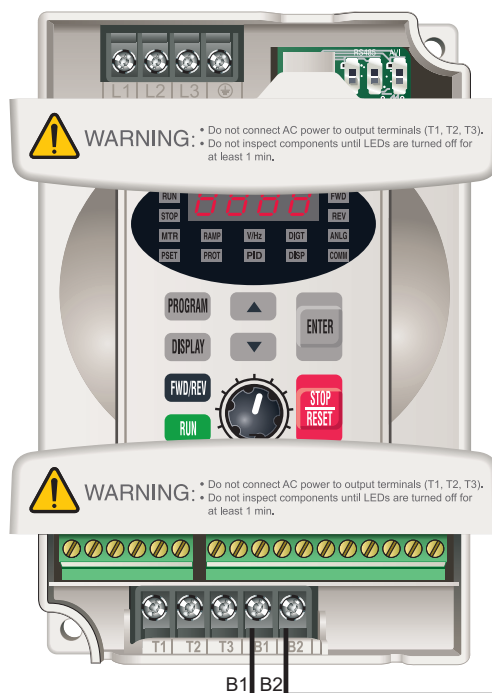
For additional information, please refer to the dynamic braking manual, GS3-DB-M.



GS-2020-BR-ENC



GS-2020-BR-ENC without Cover



GS2 braking resistor connection;

Refer to user manuals GS3-M and GS3-DB-M for DURAPULSE resistor connection information.

**Braking
Resistor**

GS/DURAPULSE Accessories – Braking Resistors

Dynamic Braking Resistors								
Part Number	Quantity Required and Wiring	Price Each	Drive Model	Motor V / hp	Braking Torque ED 10%	Resistance (Ω)	Power (W)	Duty Cycle
GS-20P5-BR	1	\$42.50	GS2-10P2 GS2-10P5 GS2-20P5	115 / 0.25 115 / 0.5 230 / 0.5	270%	200 Ω	80	10%
GS-21P0-BR	1	\$58.00	GS2-11P0 GS2/3-21P0	115 / 1 230 / 1	125%	200 Ω	80	10%
GS-22P0-BR	1	\$65.00	GS2/3-22P0	230 / 2	125%	100 Ω	300	10%
GS-23P0-BR	1	\$76.00	GS2/3-23P0	230 / 3	125%	70 Ω	300	10%
GS-25P0-BR *	1	\$75.00	GS2/3-25P0	230 / 5	125%	40 Ω	400	10%
GS-27P5-BR	1	\$71.00	GS2/3-27P5	230 / 7.5	125%	30 Ω	500	10%
GS-2010-BR-ENC	1	\$223.00	GS3-2010	230 / 10	125%	20 Ω	1000	10%
GS-2015-BR-ENC	1	\$391.00	GS3-2015	230 / 15	125%	13.6 Ω	2400	10%
GS-2020-BR-ENC	1	\$435.00	GS3-2020	230 / 20	125%	10 Ω	3000	10%
GS-2025-BR-ENC	1	\$525.00	GS3-2025	230 / 25	125%	8 Ω	4800	10%
GS-2030-BR-ENC	1	\$525.00	GS3-2030	230 / 30	125%	6.8 Ω	4800	10%
GS-2040-BR-ENC	2 (also 2 DBU)	\$435.00	GS3-2040	230 / 40	125%	10 Ω x 2	3000 x 2	10%
GS-2050-BR-ENC	2 (also 2 DBU)	\$525.00	GS3-2050	230 / 50	125%	8 Ω x 2	4800 x 2	10%
GS-41P0-BR	1	\$42.50	GS2/3-41P0	460 / 1	125%	750 Ω	80	10%
GS-42P0-BR	1	\$64.00	GS2/3-42P0 GS2-51P0 GS2-52P0	460 / 2 575 / 1 575 / 2	125%	400 Ω	300	10%
	2 / parallel		GS2-53P0 GS2-55P0 GS2-57P5	575 / 3 575 / 5 575 / 7.5				
GS-43P0-BR	1	\$64.00	GS2/3-43P0	460 / 3	125%	250 Ω	300	10%
GS-45P0-BR	1	\$64.00	GS2/3-45P0	460 / 5	125%	150 Ω	400	10%
GS-47P5-BR	1	\$95.00	GS2/3-47P5	460 / 7.5	125%	100 Ω	500	10%
GS-4010-BR	1	\$139.00	GS2/3-4010	460 / 10	125%	75 Ω	1000	10%
	2 / series		GS2-5010	575 / 10				
GS-4015-BR-ENC	1	\$223.00	GS3-4015	460 / 15	125%	50 Ω	1000	10%
GS-4020-BR-ENC	1	\$279.00	GS3-4020	460 / 20	125%	40 Ω	1500	10%
GS-4025-BR-ENC	1	\$659.00	GS3-4025	460 / 25	125%	32 Ω	4800	10%
GS-4030-BR-ENC	1	\$659.00	GS3-4030	460 / 30	125%	27.2 Ω	4800	10%
GS-4040-BR-ENC	1	\$659.00	GS3-4040	460 / 40	125%	20 Ω	6000	10%
GS-4050-BR-ENC	1	\$783.00	GS3-4050	460 / 50	125%	16 Ω	9600	10%
GS-4060-BR-ENC	1	\$783.00	GS3-4060	460 / 60	125%	13.6 Ω	9600	10%
GS-4075-BR-ENC	2 (also 2 DBU)	\$659.00	GS3-4075	460 / 75	125%	20 Ω x 2	6000 x 2	10%
GS-4100-BR-ENC	2 (also 2 DBU)	\$783.00	GS3-4100	460 / 100	125%	13.6 Ω x 2	9600 x 2	10%
NOTE: Dynamic braking resistors not available for GS1 series AC drives.								
NOTE: The use of dynamic braking resistors with GS2 series AC drives requires no parameter setup. The AC drive will automatically sense the presence of a braking resistor.								
NOTE: For DURAPULSE GS3 series AC drives 20 hp and above, dynamic braking units must be used in conjunction with braking resistors.								
* GS-25P0-BR can be also be used with SureServo AC Servo Drive # SVA-2040.								

GS/DURAPULSE Accessories – Braking Resistors

Dimensions

Braking Resistors Dimensions														
Part Number	Enclosure	Figure	Weight (g)	L1 (mm)	L2 (mm)	H (mm)	D (mm)	W (mm)						
GS-20P5-BR	none	1	160	140	125	20	5.3	40						
GS-21P0-BR			160	140	125	20	5.3	60						
GS-22P0-BR			750	215	200	30	5.3	60						
GS-23P0-BR			750	215	200	30	5.3	60						
GS-25P0-BR			930	265	250	30	5.3	60						
GS-27P5-BR		2	1100	335	320	30	53	60						
GS-2010-BR-ENC *	GCE3	3	dimensions shown in diagram											
GS-2015-BR-ENC	GCE6	4												
GS-2020-BR-ENC														
GS-2025-BR-ENC	GCE9	5												
GS-2030-BR-ENC														
GS-2040-BR-ENC	GCE6	4												
GS-2050-BR-ENC	GCE9	5												
GS-41P0-BR	none	1	160	140	125	20	5.3	60						
GS-42P0-BR			750	215	200	30	5.3	60						
GS-43P0-BR			750	215	200	30	5.3	60						
GS-45P0-BR			930	265	250	30	5.3	60						
GS-47P5-BR		2	1100	335	320	30	5.3	60						
GS-4010-BR			2800	400	385	50	5.3	100						
GS-4015-BR-ENC	GCE3	3	dimensions shown in diagram											
GS-4020-BR-ENC	GCE4	6												
GS-4025-BR-ENC	GCE12	7												
GS-4030-BR-ENC														
GS-4040-BR-ENC														
GS-4050-BR-ENC	GCE15	8												
GS-4060-BR-ENC														
GS-4075-BR-ENC	GCE12	7												
GS-4100-BR-ENC	GCE15	8												
Note: For DURAPULSE drive models 20HP and above, a dynamic braking unit must be used in conjunction with the braking resistor, as shown in the Braking Units and Braking Resistors tables. For additional information, refer to the dynamic braking manual, GS3-DB-M.														
* GS-2010-BR-ENC can be also be used with SureServo AC Servo Drive #s SVA-2100 & SVA-2300.														

GS/DURAPULSE Accessories – Braking Resistors

Figure 1

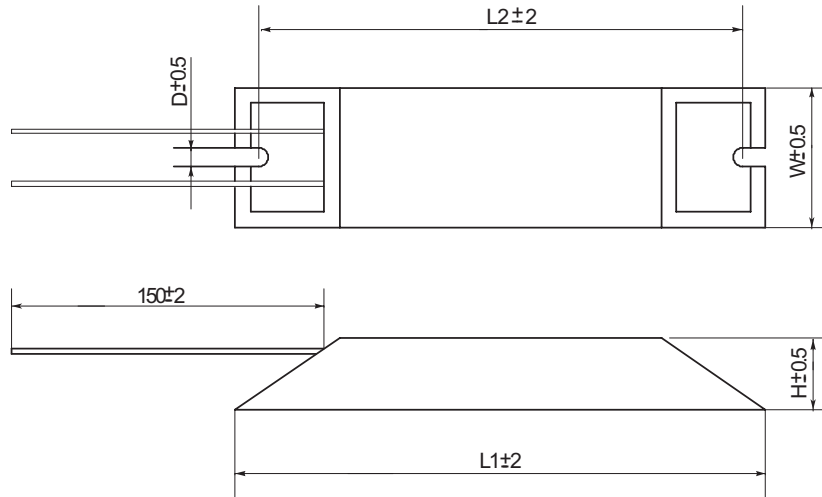


Figure 2

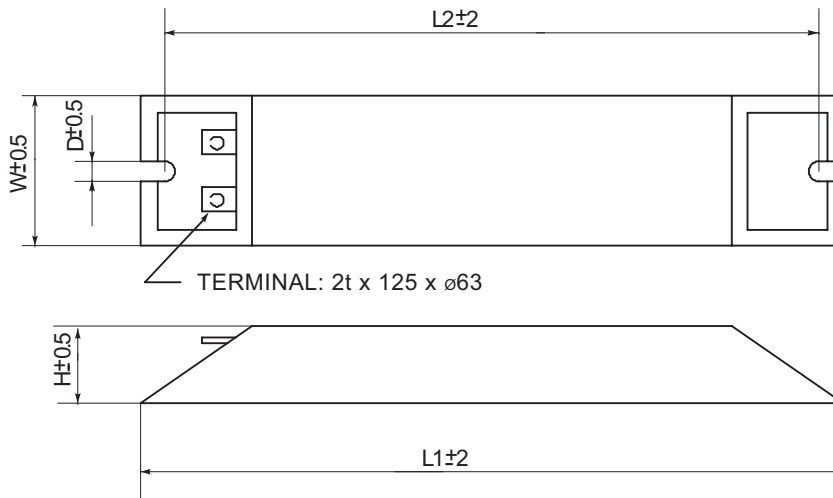


Figure 3

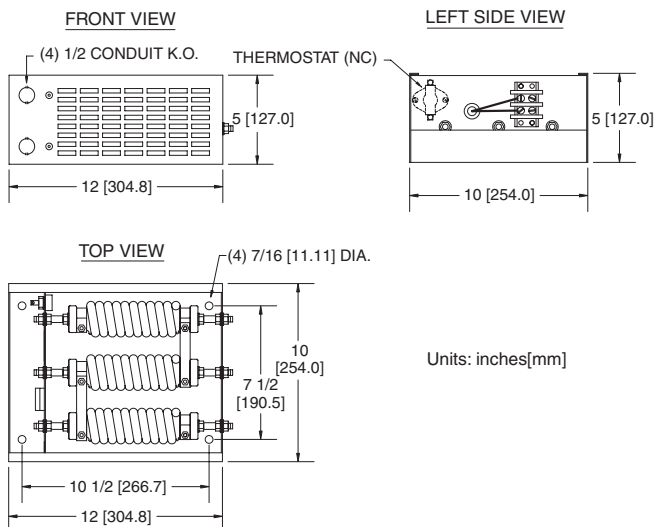
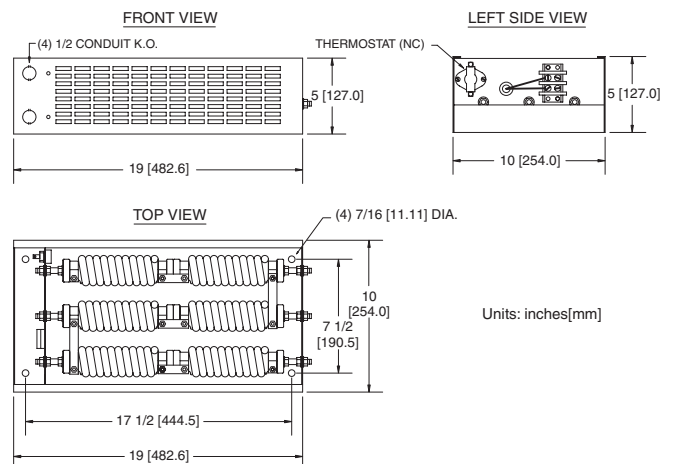


Figure 4



Units: inches[mm]

Units: inches[mm]

GS/DURAPULSE Accessories – Braking Resistors

Figure 5

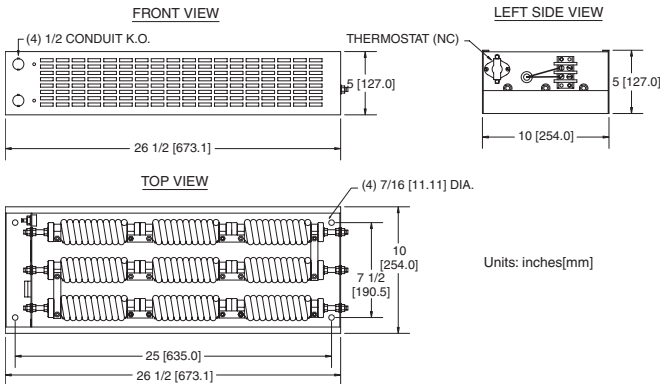


Figure 6

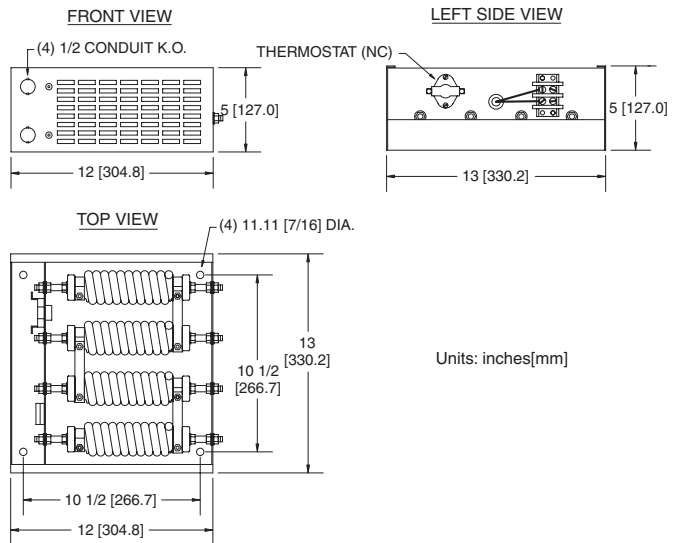


Figure 7

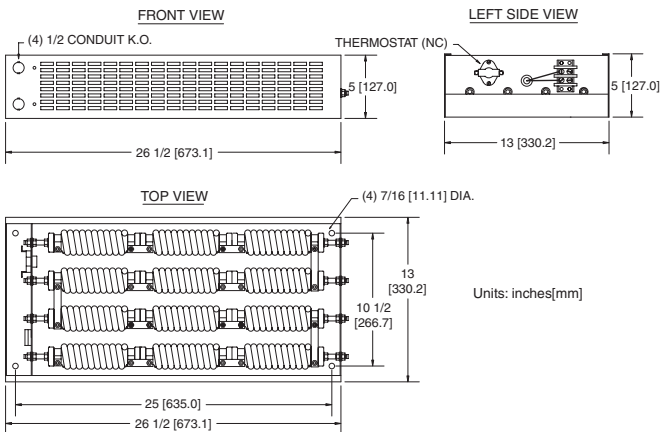
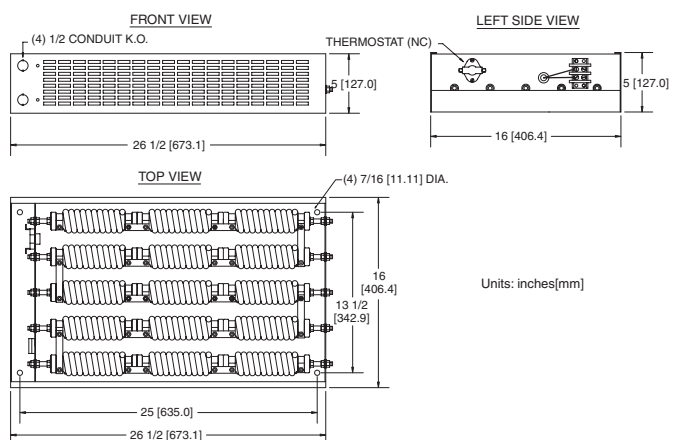


Figure 8



GS/DURApULSE Accessories – Overview

Accessories – Part numbering system

Note: With the exception of the EMI filters, RF filters, and LR series line reactors, each accessory part number begins with GS, followed by the AC Drive rating, and then the relevant accessory code. Following the accessory code, you will find a description code when applicable. The diagram at right shows the accessory part numbering system.

GS - 22P0 - LR - 3PH

Description Code (optional)

1PH: Single phase 3PH: Three phase ENC: Enclosure Blank: For reactor, blank = 3-phase

Accessory Code

BR: Braking resistor BZL: Bezel CBL: Cable DBU: Dynamic Brake Unit
EDRV: Ethernet board FB: Feedback board FKIT: Fuse Kit FUSE: Replacement fuses for FKIT
KPD: Keypad LR: Line reactor (legacy) RS: Recommended Standard

Horsepower Rating

Example: 2P0 = 2.0 hp 7P5 = 7.5 hp 010 = 10 hp

Voltage Rating

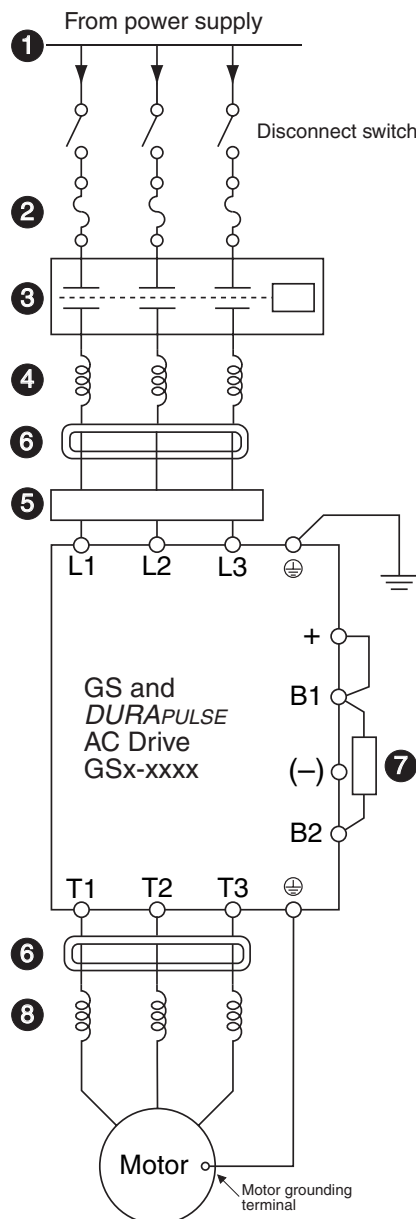
1: 115V 2: 230V 4: 460V 5: 575V

Series

GS: All GS and DURApulse Series Drives

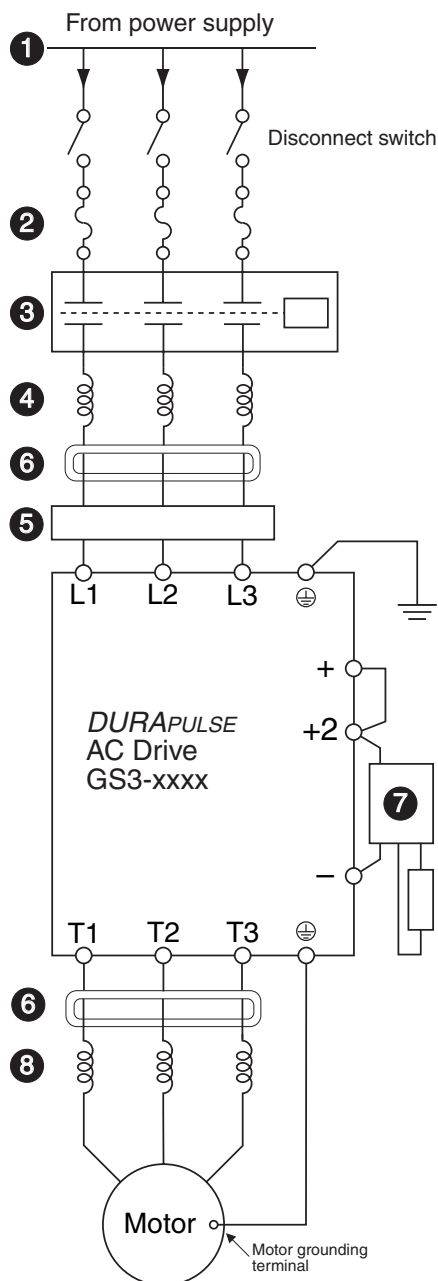
GS1: GS1 Series GS2: GS2 Series GS3: DURApulse Series LR: Newer line reactor series

Under 20hp



GS/DURAPULSE Accessories – Overview

20hp & Over (DURAPULSE only)



1 Power Supply

Please follow the specific power supply requirements shown in Chapter 1 of the *DURAPULSE* AC Drives User Manual.

2 Fuses (Refer to page DR-81.)

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) (Refer to the Motor Controls section.)

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) (Refer to page DR-50.)

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) (Refer to page DR-74.)

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) (Refer to page DR-80.)

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

7 Braking Unit & Braking Resistor (Optional) (pg DR-67)

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 Line Reactor (Optional) (Refer to page DR-50.)

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 "non-inverter-duty" motors and when the length of wiring between the AC drive and motor exceeds 75 feet.