

# **Passive Shunt for DSM175/DSM1150**

## **Installation Manual**

Part Number 108-31054-00

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**Giddings & Lewis**

Giddings & Lewis Controls, Measurement & Sensing

## **NOTE**

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DO NOT ATTEMPT to use any Giddings & Lewis product until the use of such product is completely understood. It is the responsibility of the user to make certain proper operation practices are understood. Giddings & Lewis products should be used only by qualified personnel and for the express purpose for which said products were designed.

Should information not covered in this document be required, contact the Customer Service Department, Giddings & Lewis, 660 South Military Road, P.O. Box 1658, Fond du Lac, WI 54936-1658. Giddings & Lewis can be reached by telephone at (920) 921-7100.

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# CHAPTER 1 Product Review

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## Important Information

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Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards.

The illustrations, charts, and layout examples shown in this guide are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Giddings & Lewis does not assume liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Throughout this manual notes are used to make you aware of safety considerations. For example:



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This symbol identifies information about practices or circumstances that can lead to personal injury or death, property damage or economic loss.

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Attention statements help you to:

- identify a hazard
- avoid the hazard
- recognize the consequences

Giddings & Lewis drives and controllers need external power dissipation when large inertial loads are present. Loads that require power dissipation greater than 50 Watts continuous in DSM175 and 180 Watts continuous in DSM1150 Amp products require the use of external shunt resistor(s) to ensure that drive faults due to excessive bus voltage do not occur.

As a motor decelerates, power is returned from the motor to the drive module, causing the bus voltage on the drive to increase. Internal shunt resistors in the DSM175 Amp and the DSM1150 Amp Giddings & Lewis servo amplifier products have circuitry that senses the voltage on the drive's DC bus and dissipates power when needed. When the bus voltage reaches the shunt turn-ON voltage of the Drive, the internal shunt circuitry allows the excessive regenerated power to be dissipated in an external resistor. After the bus voltage is reduced to the turn-OFF voltage level, the shunt resistor turns OFF and no additional power is dissipated by the shunt resistor. Table 1.1 on page 1-1 lists performance specifications.



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**Warning:** Using this shunt with less than a 75-amp product can cause equipment damage or personal injury.

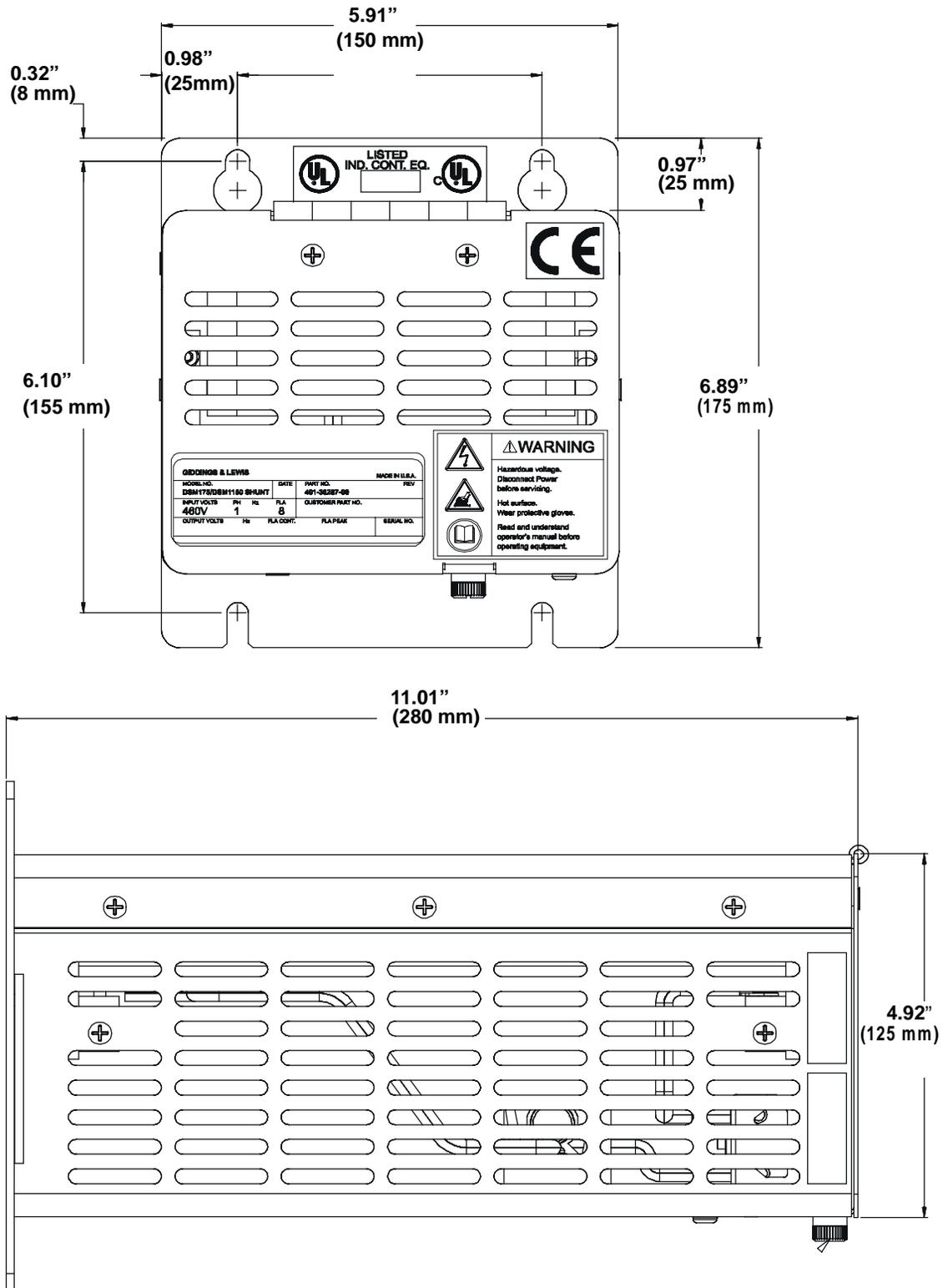
This passive shunt module must be used with DSM175 or DSM1150 Giddings & Lewis products.

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**Table 1.1 Performance Specifications**

<b>Item</b>	<b>Value</b>
Product Use	DSM175, DSM1150, Giddings & Lewis products
Dimensions	175 mm x 150 mm x 280 mm (H 6.89" x W 5.91" x D 11.01") (Also see Figure 1.1 for mounting dimensions)
Weight net shipping	3.31 kg (7 lbs) DSM175 4.08 kg (9 lbs) DSM1150
Mounting Hardware	Hex Cap Screws M6 (1/4"-20)
Resistance	$18\Omega \pm 10\%$
Ambient Temperature	50° C (122° F) Maximum
Power rating peak continuous	10 kW 900 W
Fuse	10 Amp, 700 VDC, fast acting (BUSSMANN FWP 10A14F)
Power Wire size	8.4 mm <sup>2</sup> (8 AWG)
Shunt Terminal Block Torque	4.0 N-m (35 in-lb)

**FIGURE 1.1 Mounting and Dimensions Drawing**



## CHAPTER 2 Installing Your Shunt Module

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### Installation Safety

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Proper wire sizing and installation procedures are required for electrical power equipment in an industrial environment. Installation must be performed by properly qualified personnel.



### Cabinet Requirements

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1. Mount the unit in an enclosure providing protection to IP54 (protected against dust and splashing water) or IP65 (dust free and protected against waterjets) if the work environment is poor. Many NEMA (National Electrical Manufacturers Association) Type 4 cabinets provide this level of protection.
2. Minimum surrounding space requirements are as follows:  
Minimum clearance for airflow is 155 mm (6.1").  
Adequate sizing and ventilation to dissipate heat generated by Giddings & Lewis drive/controller products and the Passive Shunt(s).

The air should be free of oil, corrosives, or electrical conductive contaminants.

### Specifications for Installation

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<b>Operating Temperature:</b>	0-50° C (32° -122° F)
<b>Field Wiring:</b>	Copper, rated 75° C (167° F) minimum
<b>Terminal Block Torque:</b>	20 LB-IN
<b>Average Power Dissipation:</b>	900 W

# Mounting the Shunt Module

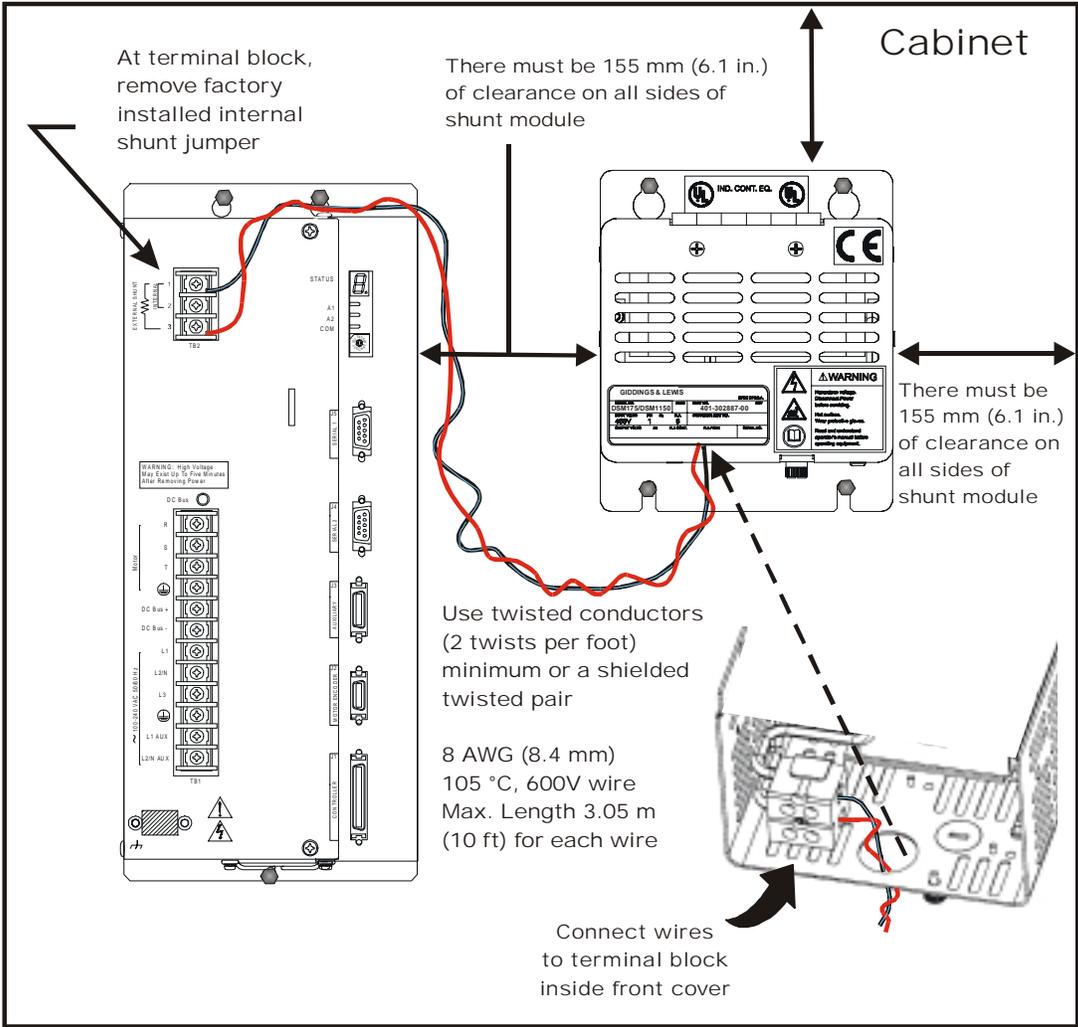
Mounting is the final task. Follow these steps:

1. Install the top mounting fasteners on the sub panel for the shunt module. The heads of both fasteners should be at least 0.25 in. from the panel edges.
2. Hang the Passive External Shunt Module on the two upper fasteners.
3. Install the lower fasteners for the shunt module.
4. Tighten all mounting fasteners.

## 900 Watt Dissipation Cabinet Layout

The following illustration shows the wiring of a single shunt module and a single DSM175 or single DSM1150 product inside a cabinet. Only one shunt can be used per DSM175 product or damage to the drive will result.

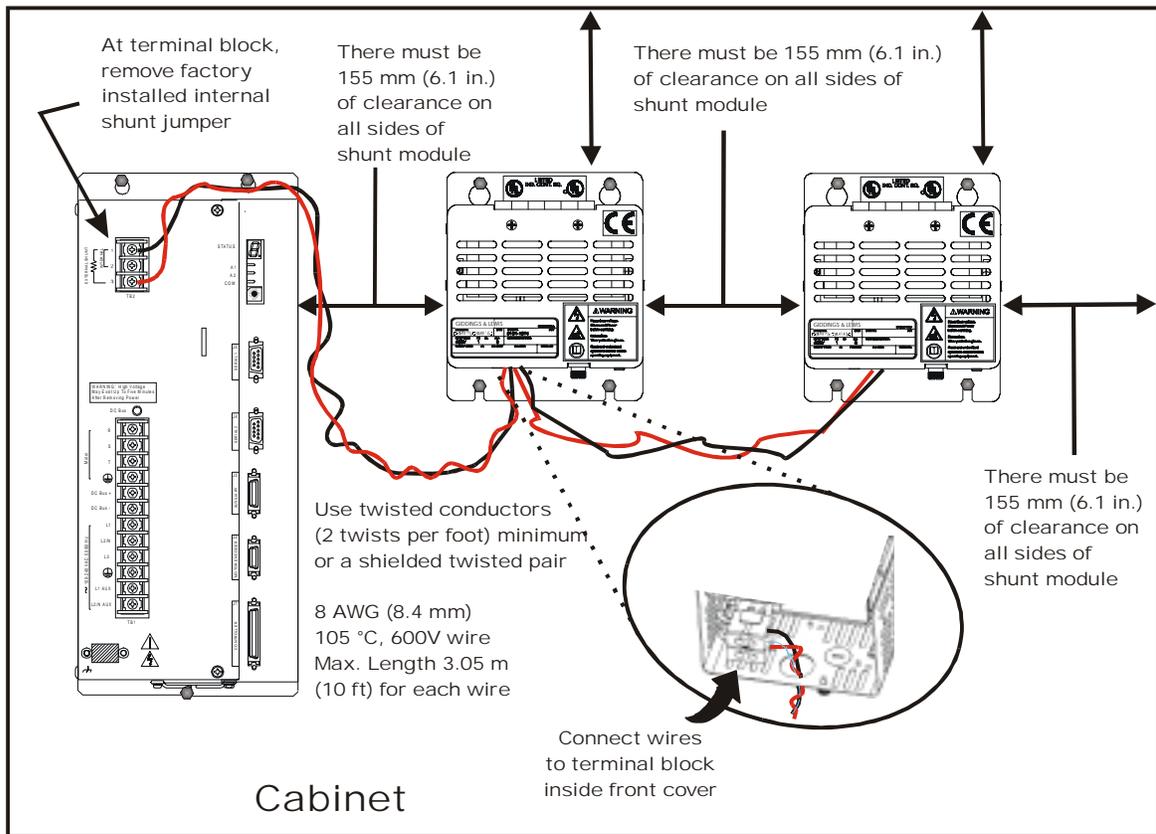
**FIGURE 2.1 Shunt Module and Conductor Routing for 900W Dissipation Layout**



## 1,800 Watt Dissipation Cabinet Layout

With a 1,800 Watt layout, two shunts can be used in a parallel configuration. Two shunt modules effectively double the amount of available power dissipation on the bus. A system using more than two shunt modules per 150 Amp product will damage the drive.

**FIGURE 2.2 Shunt Module and Conductor Routing for 1800W Dissipation Layout**



## Product Support

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Giddings & Lewis product support is available over the phone. When you call, you should be at your computer and have the hardware and software manuals at hand. Be prepared to give the following information:

- The version numbers of the hardware and software products.
- The type of hardware that you are using.
- The fault indicators and the exact wording of any messages that appears on your screen.
- How you have tried to solve the problem.

### **Distributor & Representative Network**

The Giddings & Lewis has a wide network of distributors that are trained to support our products. If you encounter problems, call the distributor or representative where you purchased the product before contacting the factory.

### **Applications Engineers and Field Service**

In the United States you can reach the Giddings & Lewis factory based support staff by phone between 7:00 AM and 5:00 PM (CST) Monday through Friday at 1-800-558-4808. The applications engineers can assist you with programming difficulties as well as ideas for how to approach your automation task. Should your problem require on-site assistance, field service is available.

The applications engineers can also be reached via fax at 1-920-906-7669. The fax machine is open 24 hours 7 days a week. Faxes will be answered during regular business hours only.

In Europe, support can be obtained through Giddings & Lewis. The support staff may be reached by telephone between 8:30 and 17:30 local time, Monday through Friday at 011-44-15154-62010, or via fax at 011-44-15154-72801.