

# **MEG® Driver**

Customer Product Manual  
Part 229776B

Issued 10/14

**For parts and technical support, call the Industrial Coating  
Systems Customer Support Center at (800) 433-9319 or  
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**Contact Us**

Nordson Corporation welcomes requests for information, comments, and inquiries about its products. General information about Nordson can be found on the Internet using the following address:  
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# MEG<sup>®</sup> Driver

## Safety

Read and follow these safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to persons operating or servicing equipment.

## *Qualified Personnel*

Equipment owners are responsible for making sure that Nordson equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

## *Intended Use*

Use of Nordson equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.

Some examples of unintended use of equipment include

- using incompatible materials
- making unauthorized modifications
- removing or bypassing safety guards or interlocks
- using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

## *Regulations and Approvals*

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson equipment will be voided if instructions for installation, operation, and service are not followed.

## ***Personal Safety***

To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- While operating manual spray guns, make sure you are grounded. Wear electrically conductive gloves or a grounding strap connected to the gun handle or other true earth ground. Do not wear or carry metallic objects such as jewelry or tools.
- If you receive even a slight electrical shock, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.
- Obtain and read Material Safety Data Sheets (MSDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- Make sure the spray area is adequately ventilated.
- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

## **High-Pressure Fluids**

High-pressure fluids, unless they are safely contained, are extremely hazardous. Always relieve fluid pressure before adjusting or servicing high pressure equipment. A jet of high-pressure fluid can cut like a knife and cause serious bodily injury, amputation, or death. Fluids penetrating the skin can also cause toxic poisoning.

If you suffer a fluid injection injury, seek medical care immediately. If possible, provide a copy of the MSDS for the injected fluid to the health care provider.

The National Spray Equipment Manufacturers Association has created a wallet card that you should carry when you are operating high-pressure spray equipment. These cards are supplied with your equipment. The following is the text of this card:



**WARNING:** Any injury caused by high pressure liquid can be serious. If you are injured or even suspect an injury:

- Go to an emergency room immediately.
- Tell the doctor that you suspect an injection injury.
- Show him this card
- Tell him what kind of material you were spraying

**MEDICAL ALERT—AIRLESS SPRAY WOUNDS: NOTE TO PHYSICIAN**

Injection in the skin is a serious traumatic injury. It is important to treat the injury surgically as soon as possible. Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected directly into the bloodstream.

Consultation with a plastic surgeon or a reconstructive hand surgeon may be advisable.

The seriousness of the wound depends on where the injury is on the body, whether the substance hit something on its way in and deflected causing more damage, and many other variables including skin microflora residing in the paint or gun which are blasted into the wound. If the injected paint contains acrylic latex and titanium dioxide that damage the tissue's resistance to infection, bacterial growth will flourish. The treatment that doctors recommend for an injection injury to the hand includes immediate decompression of the closed vascular compartments of the hand to release the underlying tissue distended by the injected paint, judicious wound debridement, and immediate antibiotic treatment.

## ***Fire Safety***

To avoid a fire or explosion, follow these instructions.

- Ground all conductive equipment. Use only grounded air and fluid hoses. Check equipment and workpiece grounding devices regularly. Resistance to ground must not exceed one megohm.
- Shut down all equipment immediately if you notice static sparking or arcing. Do not restart the equipment until the cause has been identified and corrected.
- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Do not heat materials to temperatures above those recommended by the manufacturer. Make sure heat monitoring and limiting devices are working properly.
- Provide adequate ventilation to prevent dangerous concentrations of volatile particles or vapors. Refer to local codes or your material MSDS for guidance.
- Do not disconnect live electrical circuits when working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Shut off electrostatic power and ground the charging system before adjusting, cleaning, or repairing electrostatic equipment.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.



## Halogenated Hydrocarbon Solvent Hazards

Do not use halogenated hydrocarbon solvents in a pressurized system that contains aluminum components. Under pressure, these solvents can react with aluminum and explode, causing injury, death, or property damage. Halogenated hydrocarbon solvents contain one or more of the following elements:

<u>Element</u>	<u>Symbol</u>	<u>Prefix</u>
Fluorine	F	“Fluoro-”
Chlorine	Cl	“Chloro-”
Bromine	Br	“Bromo-”
Iodine	I	“Iodo-”

Check your material MSDS or contact your material supplier for more information. If you must use halogenated hydrocarbon solvents, contact your Nordson representative for information about compatible Nordson components.

## ***Action in the Event of a Malfunction***

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

- Disconnect and lock out system electrical power. Close hydraulic and pneumatic shutoff valves and relieve pressures.
- Identify the reason for the malfunction and correct it before restarting the system.

## ***Disposal***

Dispose of equipment and materials used in operation and servicing according to local codes.

## Description

See Figure 1.

The Modular Electric Gun (MEG) driver is an electrical controller that interfaces with the MEG spray gun. The driver accepts either a 5 Vdc trigger signal or a 10–40 Vdc trigger signal from a customer-supplied external timer.

The MEG driver uses solid state switches and a power supply to provide regulated peak and holding current to the spray gun coil. The coil produces a magnetic field that pulls the needle off its seat, allowing material to flow. The driver produces a clean, accurate output signal.

The front panel LEDs indicate the status of the trigger input signal from the timer and the output signal to the spray gun.

Two versions of the driver are available: a single-channel (one gun) model and a dual channel (two gun) model.

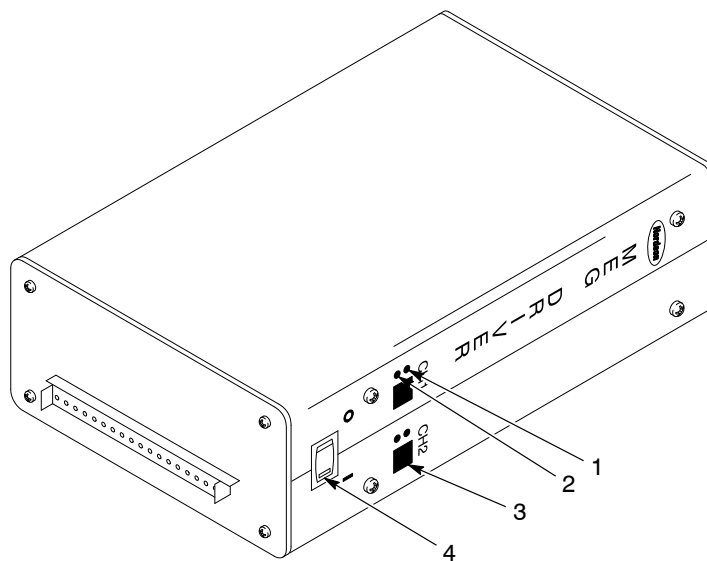


Figure 1 MEG Driver (Dual-Channel Model Shown)

- |                       |                 |
|-----------------------|-----------------|
| 1. Input LED (green)  | 3. Labeling pad |
| 2. Output LED (amber) | 4. Power switch |

## Features

The driver has the following features:

- Fast response time. The MEG driver regulates current to the spray gun to provide fast on and off times.
- Universal line operation. Automatically adjusts to line voltages between 100 to 260 Vac.
- Efficient operation. The MEG driver provides long life to the spray gun by increasing efficiency and reducing heat.

## Specifications

Item	Specification
Dimensions	Height: 222 mm (8.75 in.) Width: 64 mm (2.5 in.) Depth: 145 mm (5.7 in.)
Weight	2 kg (4.5 lb)
Electrical	100–240 Vac, 50/60 Hz, single phase, 3 amps maximum
Temperature	Ambient temperature: 2–50 °C (35.6–122 °F)
Cycle Rate	3000 cycles/min at 50% duty cycle, 100–130 Vac 1500 cycles/min at 50% duty cycle, 131–240 Vac 1200 cycles/min at 50% duty cycle, 240–260 Vac
Trigger Inputs	Trigger High: 15–48 Vdc Trigger Low: 3–7 Vdc
Pull-in Time Duration	3 msec maximum
Gun Output	1 or 2 channel, one for each spray gun Current Driver: 3 amp pull-in, 1 amp holding Short circuit protected

## Installation



**WARNING:** Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

## Unpacking



**CAUTION:** Care should be taken to avoid damage to the MEG driver during unpacking.

No special instructions are necessary to unpack the MEG driver.

1. There are two MEG driver models—single-channel and dual-channel. Compare the part number on the nameplate with the driver part numbers in the *Parts* section to make sure you have the right model.
2. Inspect the driver enclosure for dents and other physical damage. Contact a Nordson representative if any damage is found.

## Mounting

See Figure 2.

1. Position the MEG driver (1) in a vertical position as shown.
2. Snap the DIN rail clips (2) on the rear panel into the DIN rail (3).

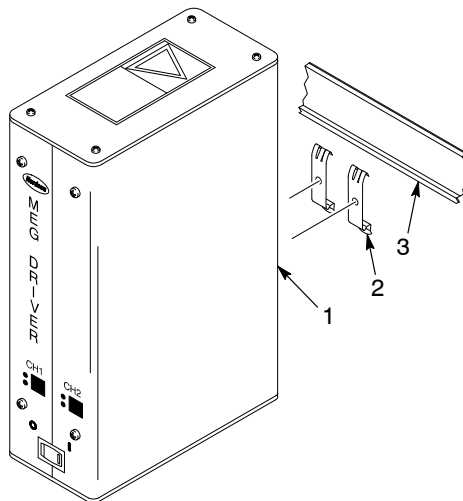


Figure 2 Typical Mounting

- |                   |             |
|-------------------|-------------|
| 1. MEG driver     | 3. DIN rail |
| 2. DIN rail clips |             |

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## Electrical Connections

See Figure 3.

### Wiring Requirements

**NOTE:** Use 18AWG shielded wire such as Belden #8770 for the driver-to-gun electrical connections. Use 16–18 AWG wire rated for at least 250 volts for the driver power connections. At a minimum, this wire must be suitable for 10 °C (50 °F) above the surrounding ambient temperature.

All driver wiring is connected to an 18-station terminal connector plugged into the receptacle on the backplane.

### AC Input Power

1. Connect the power supply line wires to L1 and L2.
2. Connect the ground wire to the power input ground.

### Trigger Signals

**NOTE:** Check for proper polarity when connecting trigger signal wires.

1. Connect the trigger input wires from the timer(s) to the TRIG 1 CHANNEL 1 (and TRIG 2 CHANNEL 2, if used) terminals:
  - For +15–48 Vdc trigger voltages, connect the input wires to + HI and COM.
  - For 3–7 Vdc trigger voltage, connect the input wires to + L0 and COM.

### Spray Gun Connections

The spray gun coil connections are not polarity sensitive. Connect the MEG driver to the spray gun(s) as shown in the wiring diagram. Refer to your spray gun manual for wiring and fusing requirements.

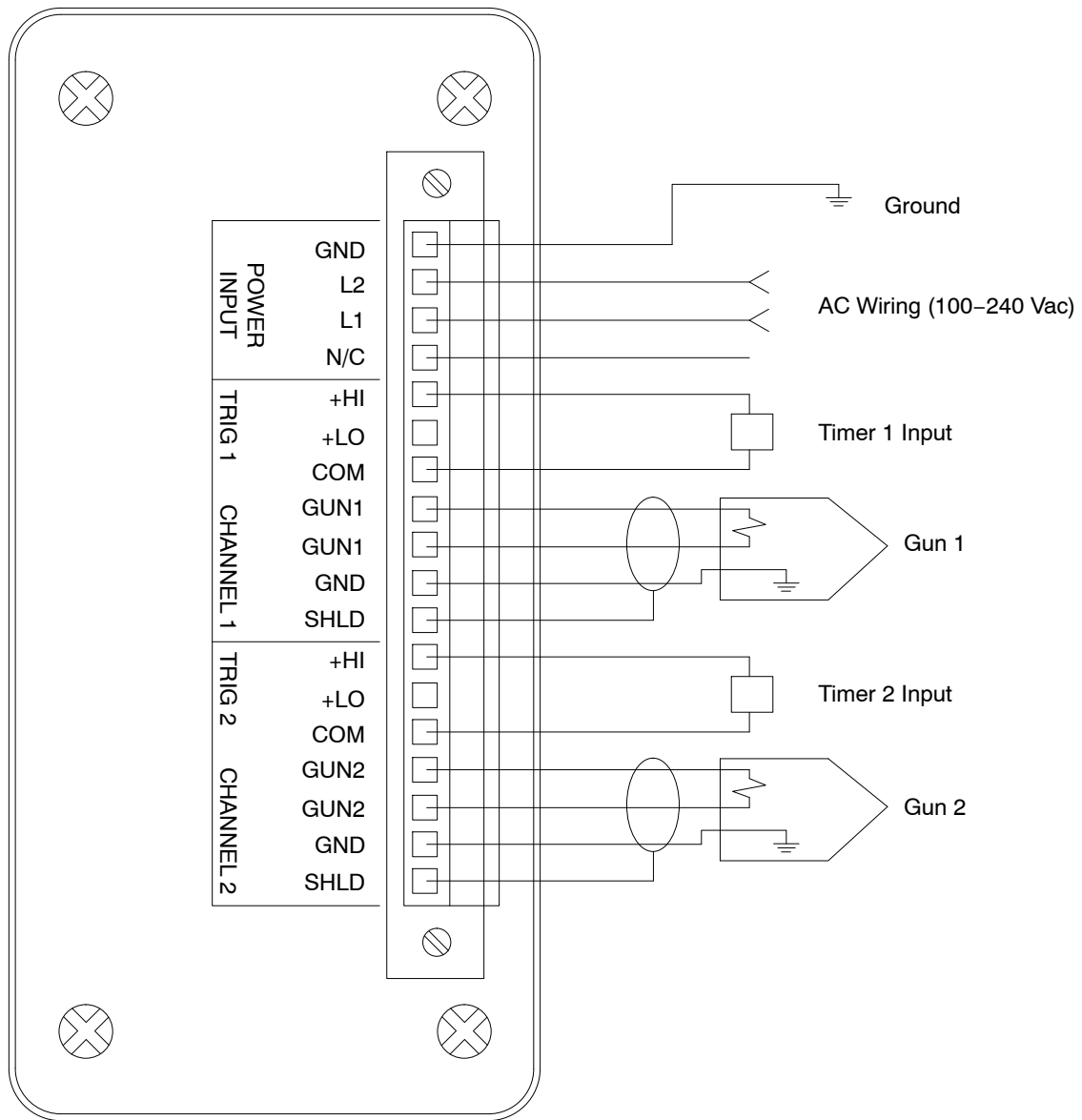


Figure 3 Electrical Connections

## Operation

Operation consists of turning on the MEG driver and monitoring the input and output LEDs. The LEDs light when the timer sends a trigger signal to the driver and the driver energizes the gun coil.

## Troubleshooting



**WARNING:** Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

These procedures cover only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your local Nordson representative for help.

Problem	Possible Cause	Corrective Action
1. Trigger signal good but green trigger input LED does not illuminate	No input power	Connect power supply to the unit and turn on the power source. Refer to the <i>AC Input Power</i> section in <i>Installation</i> . See Figure 3. Check trigger electrical connections and polarity.
2. Amber output LED does not illuminate	Fuses blown	Replace the 1.5 amp, 250 Vac fuses on the circuit board.
	Spray gun coil not connected to the driver output terminals	Check output connections (Gun1 and Gun 2). See Figure 3.
	Driver circuit board failure	Replace driver circuit board assembly.
3. Input trigger LED does not illuminate	Timer cable connections loose or cable bad	Check the timer cable connections and cable continuity.
	Timer malfunction	Check timer output signal.
	Driver circuit board failure	Replace driver circuit board assembly.

## Repair



**WARNING:** Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.



**WARNING:** Disconnect equipment from line voltage before performing the following tasks. Failure to observe this warning may result in personal injury or equipment damage.

Repair consists of replacing the driver circuit board assemblies. Single channel models have one assembly, dual channel models have two.

See Figure 4.

1. Remove the screws (1) and washers (2) securing the enclosure top plate (3).
2. Note the position and orientation of the circuit board assemblies. You must install the new board assemblies in the same position, with the same orientation.
3. Remove the circuit board assemblies (4) from the enclosure (5) by firmly pulling the board away from the back plate pin socket (6).



**CAUTION:** Use extreme care when installing the driver board to prevent damage to the connector pins.

4. Carefully install the new circuit board assemblies into the enclosure. Make sure that the connector pins seat into the back plate pin socket.
5. Install the enclosure top plate. Tighten the screws securely.



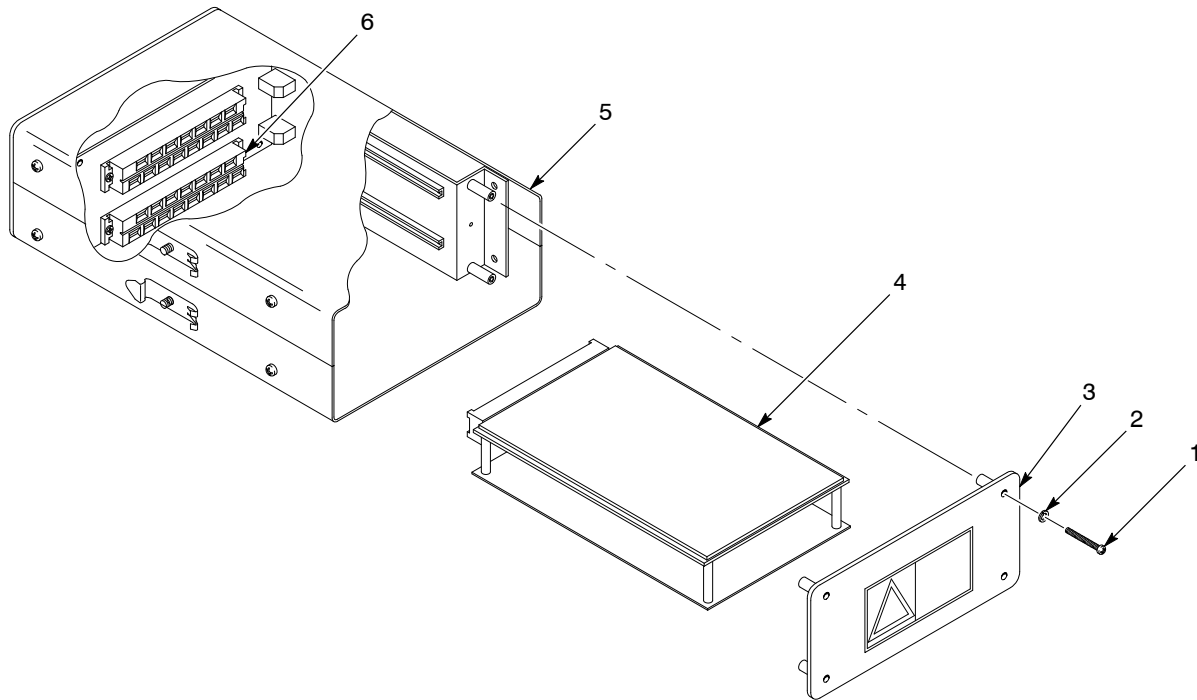


Figure 4 Typical Circuit Board Replacement

- |            |                           |               |
|------------|---------------------------|---------------|
| 1. Screws  | 3. Enclosure top plate    | 5. Enclosure  |
| 2. Washers | 4. Circuit board assembly | 6. Pin socket |

## Parts

To order parts, call the Nordson Industrial Coating Systems Customer Support Center at (800) 433-9319 or contact your local Nordson representative. Use the part illustrations and parts lists to locate and describe the parts you need to order.

### *Using the Illustrated Parts List*

Numbers in the Item column correspond to numbers that identify parts in illustrations following each parts list. The code NS (not shown) indicates that a listed part is not illustrated. A dash (—) is used when the part number applies to all parts in the illustration.

The number in the Part column is the Nordson Corporation part number. A series of dashes in this column (-----) means the part cannot be ordered separately.

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentions show the relationships between assemblies, subassemblies, and parts.

Item	Part	Description	Quantity	Note
—	0000000	Assembly	1	
1	000000	• Subassembly	2	A
2	000000	• • Part	1	

- If you order the assembly, items 1 and 2 will be included.
- If you order item 1, item 2 will be included.
- If you order item 2, you will receive item 2 only.

The number in the Quantity column is the quantity required per unit, assembly, or subassembly. The code AR (As Required) is used if the part number is a bulk item ordered in quantities or if the quantity per assembly depends on the product version or model.

Letters in the Note column refer to notes at the end of each parts list. Notes contain important information about usage and ordering. Special attention should be given to notes.

## MEG Driver Parts

See Figure 5.

Item	Part	Description	Quantity	Note
—	OBS	Driver, single MEG assembly	1	
—	OBS	Driver, dual MEG assembly	1	
1	307913	• Connector, terminal, 18 station	1	
2	982981	• Screw, pan head, recessed, M3.5 x 50, zinc	4	
3	983413	• Washer, lock, m, internal, M3.5, zinc-plated stainless steel	4	
4	-----	• PCA, config intfc-bkpl PCA's	1	
5	227149	• PCA, CBG, MEG driver	AR	A
6	-----	• Enclosure, top plate, MEG	1	
7	983520	• Washer, lock, m, internal, M3, zinc-plated stainless steel	4	
8	982903	• Screw, pan head, recessed, M3 x 30, zinc	4	
9	131345	• Clip, DIN rail	2	
10	983416	• Washer, lock, m, internal, M4, zinc-plated stainless steel	2	
11	982881	• Screw, pan head, recessed, M4 x 6, zinc	2	
NOTE A: Two required for dual-channel MEG driver.				
AR: As Required				

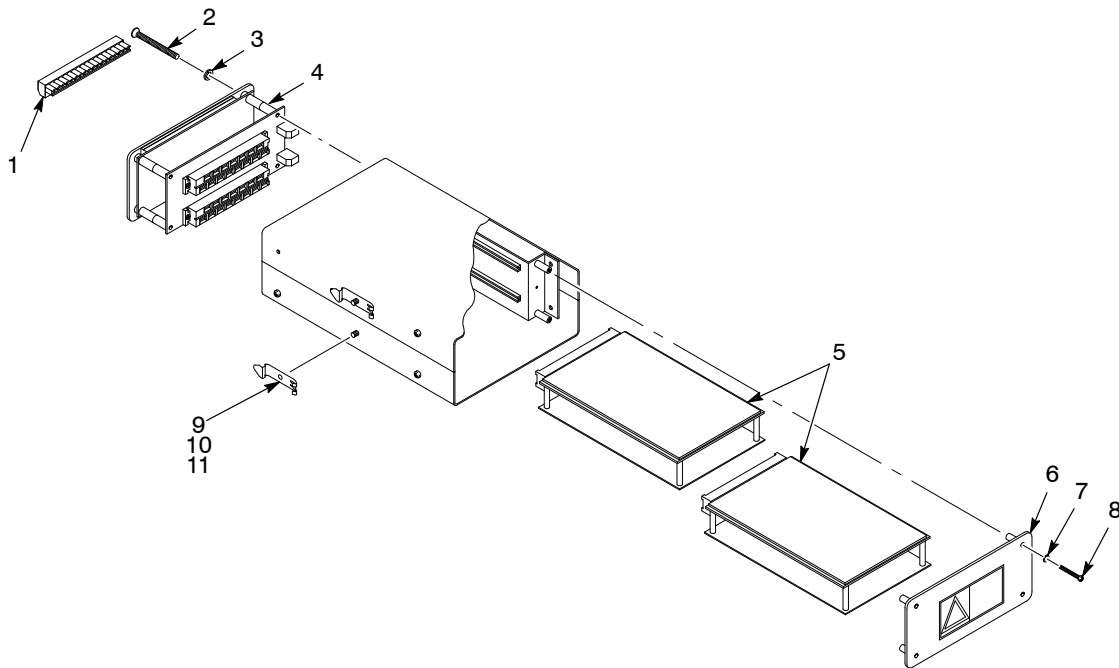


Figure 5 MEG Driver (Dual-Channel Model Shown)

***Recommended Spare Parts***

Keep the following parts on hand to reduce downtime.

See Figure 5.

Item	Part	Description	Quantity	Note
1	307913	Connector, terminal, 18 station	1	
5	227149	PCA, CBG, MEG driver	1	
NS	227348	Fuse, 5 x 20 mm, 250 V, 1.5A, clip	2	
NS: Not Shown				