



OPERATING MANUAL:

MASTERFLEX[®] GEAR PUMP DRIVE

Model Nos.

75211-12

75211-17

A-1299-1177
Edition 02

© 2019 Cole-Parmer Instrument Company LLC. All rights reserved.

Masterflex – Reg TM Cole-Parmer Instrument Company.

Trademarks bearing the ® symbol in this publication are registered in the U.S. and in other countries.

PUMP FOR LIQUIDS ORIGINAL INSTRUCTIONS

SAFETY PRECAUTIONS



WARNING: Remove power from the pump before attempting any maintenance.

Remove power from the pump before any cleaning operation is started.

Repeatedly applying AC line power to the drive as a means of starting the pump can cause drive hardware damage and will void the warranty. Use the control inputs located on the 9 pin connector to start and stop the pump; this will dramatically reduce the current surge associated with starting the pump. Replace the power cord only with one of the same type and rating. The minimum power ratings are stated on the rear panel.



WARNING: To prevent damage to pump, do not restrict pump inlet or run the pump dry.



CAUTION: When changing flow direction, allow the pump to come to a complete stop before starting again. Failure to do so could cause permanent damage to the motor.

Replace the fuse only with one of the same type and rating. The fuse rating and type are stated on the rear panel.



CAUTION: To avoid electrical shock, the power cord protective grounding conductor must be connected to ground. Not for operation in wet locations as defined by EN61010-1.

If the product is not used in a manner specified in the instructions, the protection provided by the equipment may be impaired.

EXPLANATION OF SYMBOLS



CAUTION: Risk of Danger. Consult Operator's manual for nature of hazard and corrective actions.



CAUTION: Risk of electric shock. Consult Operator's manual for nature of hazard and corrective actions.

WARNING: Production Use Limitation



This product is not designed for, nor intended for use in patient connected applications; including, but not limited to, medical and dental use, and accordingly has not been submitted for FDA approval.



This product is not designed for, nor intended for use in hazardous duty areas as defined by ATEX or the NEC (National Electrical Code); including, but not limited to use with flammable liquids. Consult the factory for products suitable for these types of applications.

Safety

1. Read instructions before operating the unit.
2. Observe safety precautions at all times, especially when pumping dangerous liquids.
3. If the pump runs unusually noisy, make sure the gear pump is mounted correctly.
4. The Pump Drives must be well-grounded at all times.
5. The Pump Drives are equipped with a current-limiting circuit that will slow the motor down if any of the following conditions exist:
 - a. Fluid viscosity higher than specified.
 - b. Rotating parts binding or severely worn.
6. The unit is fused and grounded to protect the operator in the event of short circuits that could be caused by liquid entering the case.



CAUTION: Replace the fuse only with one of the same type and rating. The fuse rating and type are stated on the rear panel.

7. The Pump Drives should not be used in outdoor or hazardous locations.

Table of Contents

	Page
Section 1 INTRODUCTION	1-1
Variety of Pump Heads Accepted	1-1
Section 2 INSTALLATION AND SETUP	2-1
Setup and Drive Operation	2-1
External Start/Stop Control	2-2
Section 3 MAINTENANCE	3-1
Motor Brush Check/Replacement	3-1
Fuse Replacement	3-2
Replacement Parts	3-3
Cleaning	3-3
Section 4 ACCESSORIES	4-1
Section 5 SPECIFICATIONS	5-1
Section 6 WARRANTY, PRODUCT RETURN, AND TECHNICAL ASSISTANCE	6-1
Warranty	6-1
Product Return	6-2
Technical Assistance	6-2

Figures

	Page
View of Rear Drive	2-1
View of Drive Front Controls	2-2
DB-9 Pin Connector Configuration with Wiring Scheme	2-3
DB-9 Pin Connector Jumper Installation	2-3
Typical Brush Replacement	3-1
Fuse Replacement	3-2

Section 1 Introduction

The instructions in this manual are task oriented to allow easy access to the desired information. Figure1, provides summarized information on all controls to the Pump Drives. This manual contains complete information on installing and setting up the Pump Drives, as well as operating and servicing at the user level. The following chart provides basic information on models covered in this manual.

Drive Catalog Number	Output rpm	Flow Rate	Power Requirement*
75211-12	50 to 5000	2.5-5450 mL/min (purchase pump head separately)	90 to 130V AC
75211-17			200 to 260V AC

* AC voltages can be wither 50 or 60 Hz

The Pump Drives contain the pump drive motor and motor controls in compact unit. *MICROPUMP*® Pump Heads are attached directly to the motor, which is accessible from the front panel. In addition, these drives incorporate the following features:

- Ball bearing motor for continuous duty
- Have controlled start-up
- Speed control over a 100:1 range
- Pumps are magnetically coupled to motor
- IP22 rating per IEC 529
- Replaceable motor brushes

Contact your dealer for available pump heads and performance information.



WARNING: Gear pumps should not be operated above 5000 rpm.



CAUTION: To prevent damage to pump, do not restrict pump inlet or run the pump dry.

The solid-state speed control circuitry offers excellent speed regulation even with line voltage and load variations. A LED on the front panel illuminates whenever the O/I switch is in the I (on) position. Pump drive speed can be manually controlled over a 100:1 range with the front panel mounted potentionmeter.

Section 2 Installation and Setup

Setup and Drive Operation

Unpack the Pump Drive and retain all packing material until proper product operation has been verified.

The Pump Drive rests on five vibration isolator feet for placement on a bench, desk or table. It is supplied with a power cord.

1. If applicable, attach the Micropump Pump Head.
2. Check that the **O/I** Switch is in the **O** (off) position.
3. Connect the AC power cord on the rear panel to the AC power source.
4. Set the speed control to minimum.
5. Install the pump below the level of the supply liquid. the liquid must be under atmospheric conditions.
6. This completes the basic setup.

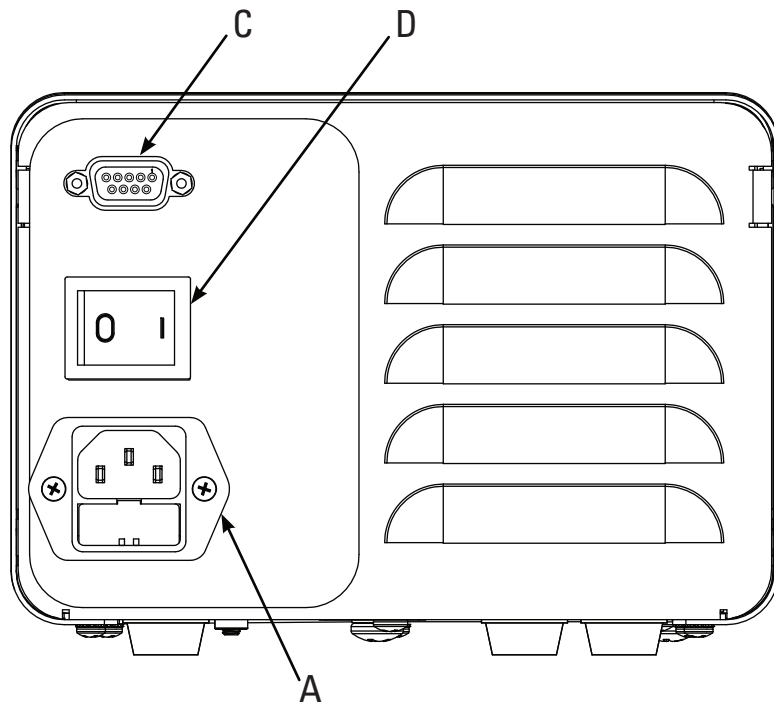


Figure 2-1. View of Rear Drive

- A. IEC Power Entry Module
- B. Power Switch
- C. External Start/Stop Connector

Setup and Drive Operation (continued)

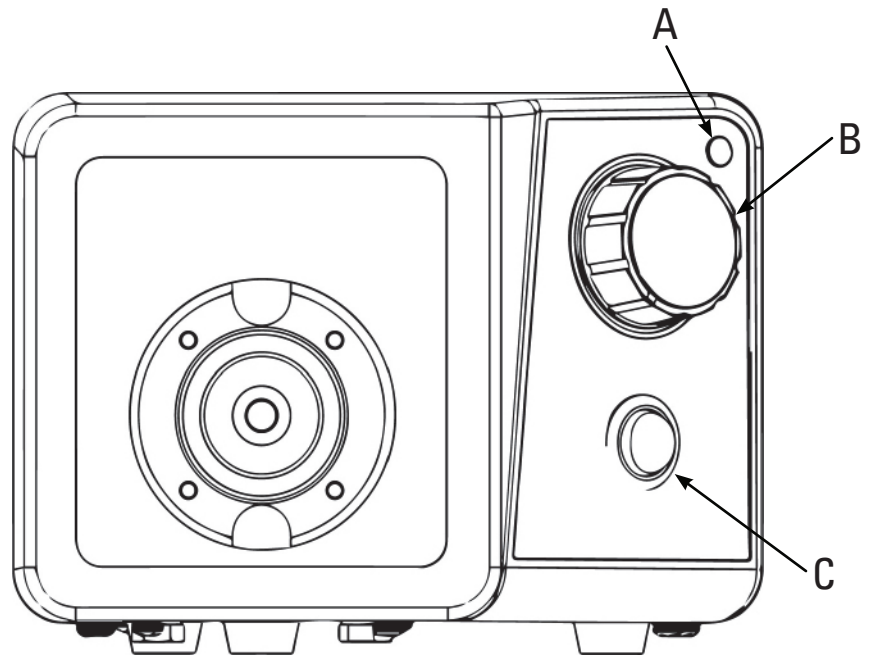


Figure 2-2. View of Drive Front Controls

- A. 1- Turn Speed Control
- B. Power Indicator
- C. START/STOP Switch

External Start/Stop Control



WARNING: Repeatedly applying AC line power to the drive as a means of starting the pump can cause drive hardware damage and will void the warranty. Use the control inputs located on the 9 pin connector to start and stop the pump; this will dramatically reduce the current surge associated with starting the pump. Replace the power cord only with one of the same type and rating. The minimum power ratings are stated on the rear panel.

External Start/Stop Control (continued)

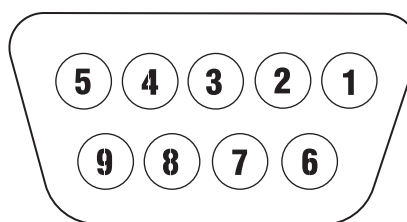


Figure 2-3. DB-9 Pin Connector Configuration with Wiring Scheme

Pin No.	Description
1	Reserved – Not Used
2	Reserved – Not Used
3	Reserved – Not Used
4	Reserved – Not Used
5	Reserved – Not Used
6	Start/ Stop
7	Start/ Stop
8	Reserved – Not Used
9	Reserved – Not Used

NOTE: Jumper must be installed for pump to run.

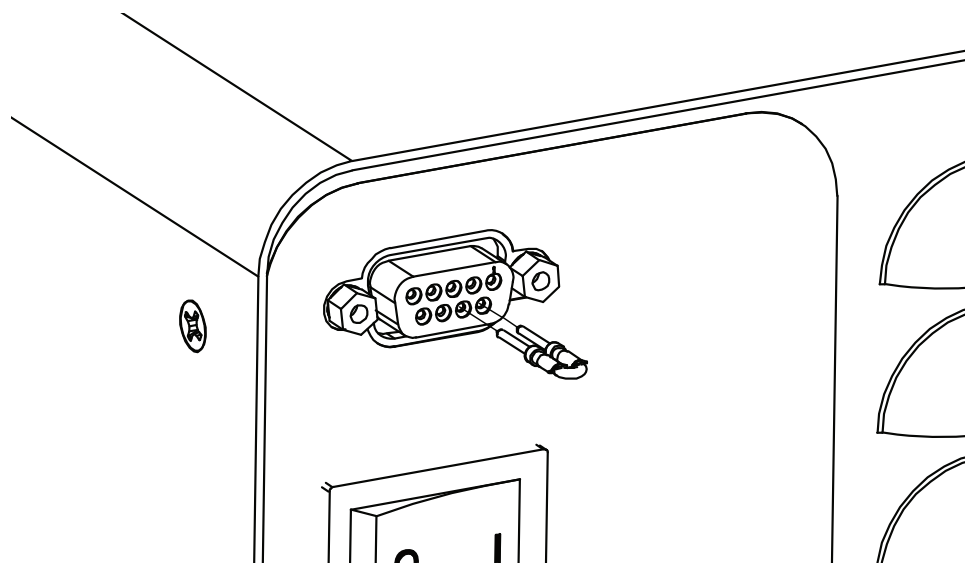


Figure 2-4. DB-9 Connector Jumper Installation.

Section 3 Maintenance

Motor Brush Check/Replacement



WARNING: Remove power from the pump before attempting any maintenance.

1. Place the ON/OFF SWITCH in the off position.
2. Disconnect the AC power input line cord from the AC receptacle.
3. Remove the screws from each side of the housing and lift off the housing.
4. Carefully unscrew each brush cap. Withdraw the brush, and examine it for wear.

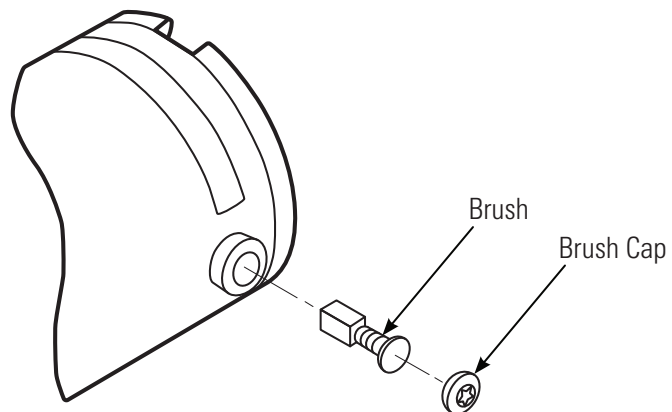


Figure 3-1. Typical Brush Replacement

NOTE: Replace both brushes, if either brush is less than 7.6 mm (0.300 in) long from base to point.

5. Insert brushes and install brush cap.
6. Install housing and secure with the screws on each side.
7. Connect the AC power input line cord to the AC receptacle.

Fuse Replacement



CAUTION: Replace the fuse only with one of the same type and rating. The fuse rating and type are stated on the rear panel.

1. Place the power switch in the off position.
2. Disconnect the AC power input line cord from the receptacle.
3. Remove and check the fuse and replace if defective.

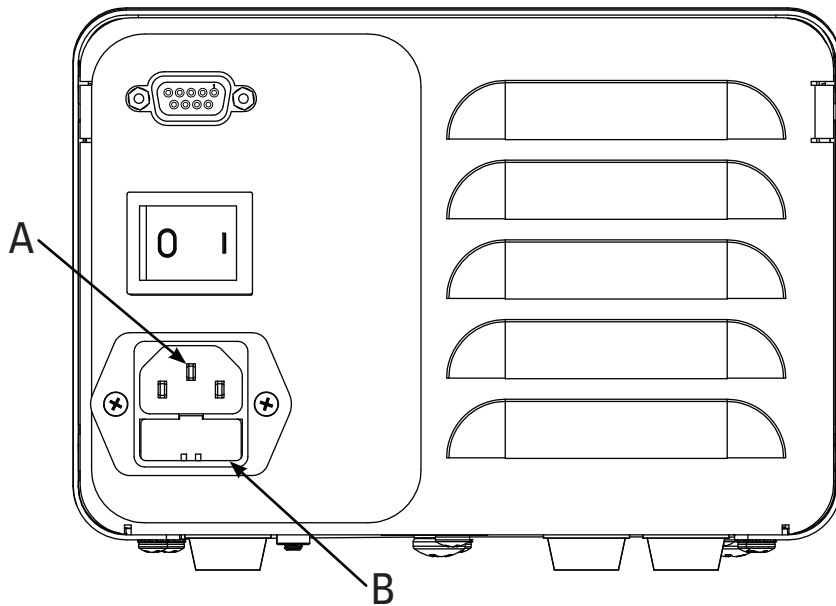


Figure 3-2. Fuse Replacement

Item	Description
A	IEC Power Entry Module / Line Cord
B	(5 X 20 mm) Fuse- Do Not Substitute

Replacement Parts

Description	Part Number
Brushes (set of 2)	07520-04
Jumper Kit (set of 2)	07555-90
Fuse (75211-12) T4.0A 250V; 5 × 20 mm	77500-26
Fuse (75211-17) T2.0A 250V; 5 × 20 mm	77500-26

Cleaning



WARNING: Remove power from the pump before any cleaning operation is started.

Keep the drive enclosure clean with mild detergents. Do not immerse or use excessive fluid when cleaning.

Section 4 Accessories

Description	Part Number
Footswitch with 6 ft. DB-9 male connector	77595-35
Handheld Remote Controller	07528-80
DB-9 External Control Connector	07595-45
DB-9 Remote Control Cable, 25 ft.	07595-47

Section 5 Specifications

Output:

Speed:

5000 rpm

Torque output, Maximum:

12 oz-in (85 mN-m)

Input:

Operating Voltage/Frequency:

2.8A @ 115 Vrms 50/60 Hz,

1.4A @ 230 Vrms 50/60 Hz

External Inputs:

START/STOP

Dry Contact closure

Construction:

Dimensions (L x W x H):

9.09 in x 7.23 in x 5.29 in
(231 × 184 × 134.5 mm)

Weight:

9.46 lbs. (4.26 kg)

Enclosure Rating:

IP 22 per IEC 60529

Environment

Temperature, Operating:

All models 0° to 40°C (32° to 104°F)

Temperature, Storage:

All models -25° to 65°C (-13° to 149°F)

Humidity (non-condensing):

Models w/plastic enclosure 10% to 90%

Altitude:

All models Less than 2000 m

Pollution Degree:

Models w/plastic enclosure Pollution Degree 3
(Indoor use — Sheltered locations)

Chemical Resistance:

Powder coated steel enclosure and cover,
ABS plastic and vinyl

Compliance:

Conforms to ANSI/UL

61010-1, 3rd edition

and CSA-C22.2

No. 61010-1-12

(For CE Mark):

EN61010-1 (EU Low Voltage Directive) and

EN61326-1 (EU EMC Directive)

Section 6 Warranty, Product Return and Technical Assistance

Warranty

Use only MASTERFLEX precision tubing with MASTERFLEX pumps to ensure optimum performance. Use of other tubing may void applicable warranties.

This product is warranted against defects in material or workmanship, and at the option of the manufacturer or distributor, any defective product will be repaired or replaced at no charge, or the purchase price will be refunded to the purchaser, provided that: (a) the warranty claim is made in writing within the period of time specified on the warranty card, (b) proof of purchase by bill of sale or receipted invoice is submitted concurrently with the claim and shows that the product is within the applicable warranty period, and (c) the purchaser complies with procedures for returns set forth in the general terms and conditions contained in the manufacturer's or distributor's most recent catalog.

This warranty shall not apply to: (a) defects or damage resulting from: (i) misuse of the product, (ii) use of the product in other than its normal and customary manner, (iii) accident or neglect, (iv) improper testing, operation, maintenance, service, repair, installation, or storage, (v) unauthorized alteration or modification, or (b) post-expiration dated materials.

THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER, AND THE MANUFACTURER AND DISTRIBUTOR DISCLAIM ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO EMPLOYEE, AGENT, OR REPRESENTATIVE OF THE MANUFACTURER OR DISTRIBUTOR IS AUTHORIZED TO BIND THE MANUFACTURER OR DISTRIBUTOR TO ANY OTHER WARRANTY. IN NO EVENT SHALL THE MANUFACTURER OR DISTRIBUTOR BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES.

The warranty period for this product is two (2) years from date of purchase.

Section 6

Warranty, Product Return and
Technical Assistance

Product Return

To limit charges and delays, contact the Manufacturer or authorized seller for authorization and shipping instructions before returning the product, either within or outside of the warranty period. When returning the product, please state the reason for the return. For your protection, pack the product carefully and insure it against possible damage or loss. Any damages resulting from improper packaging are your responsibility.

Technical Assistance

If you have any questions about the use of this product, contact the the Manufacturer or authorized seller.

US & Canada only

Toll Free 1-800-MASTERFLEX | 1-800-637-3739

Outside US & Canada

1-847-549-7600 | 1-847-381-7050

***EN809 manufactured by:**

Cole-Parmer Instrument Company
28W092 Commercial Avenue, Barrington, IL 60010
techinfo@masterflex.com | www.masterflex.com