



**INSTALLING, OPERATING AND
MAINTAINING THE
RLVS1215 CONTROLLER**

SECTION ONE GENERAL INFORMATION

INTRODUCTION

Thank you for purchasing an **IPC Automation** motion control.

At IPC we are committed to designing and manufacturing high quality controls that meet or exceed our customers needs. This manual provides the information you will need in order to properly install and operate the **RLVS1215 DC Motor Control**.

Please feel free to call **IPC Automation** with any questions you have regarding the installation and operation of this control.

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1.2 WARRANTY

Standard conditions of sale for the company include a Statement of Warranty, which covers the control equipment. This statement of warranty covers all new equipment.

1.3 QC TESTING

Quality is an important factor of each phase of the manufacturing and development process. Each unit must pass rigorous quality tests as well as static and dynamic performance checks and a final inspection for quality of workmanship. A unit is allowed to ship only after acceptance of all aspects of Q.C. testing and inspection. This assures that you receive only those controls that meet our demanding quality standards.

1.4 STORAGE

Please take the following precautions if it should be necessary to store the control for any length of time.



Store the control in a clean, dry (non-corrosive) environment that is protected from sudden variations in temperature and high levels of moisture, shock and vibration.



The ambient temperature where the control is stored should be maintained between zero (0) and 65 degrees Centigrade.



The control should be stored in the original package in order to protect from dust and dirt contamination.

SECTION TWO PRODUCT SPECIFICATIONS

2.1 GENERAL DESCRIPTION

The RLVS1215 DC Motor Control was designed to control a 12-volt Permanent Magnet DC motor or gearmotor in a single direction application. The control will optimize the performance of the PM DC motor within the drive system. A minimum of external components are required to complete the system. All required power supplies are built into the controller and operate from a 12-volt DC power source.

The basic components of a complete system are:

- ◆ RLVS1215 DC Motor Controller
- ◆ Permanent Magnet DC Motor or Gearmotor
- ◆ 12 Volt DC Power Source
- ◆ Standard 5K or 10K Potentiometer

2.2 CONTROL SPECIFICATIONS

SUPPLY VOLTAGE	12 Volts DC
OUTPUT VOLTAGE	0 to 12 Volts DC
CONTINUOUS CURRENT	up to 15 Amperes
CHOPPER FREQUENCY	18 kHz
ACCEL/DECEL RAMP TIME	2 Seconds
AMBIENT TEMPERATURE RANGE	0 to 50 Degrees Centigrade
POTENTIOMETER VALUE	5K Ohms OR 10K Ohms

2.3 CONTROL FEATURES OVERVIEW

- ✓ FET Pulse Width Modulated Design
- ✓ Single Direction Operation
- ✓ Current Limiting
- ✓ Pot Loss Protection
- ✓ Smooth Linear Acceleration
- ✓ On/Off Control Voltage Switch
- ✓ Reverse Battery Polarity Protection

2.31 CURRENT LIMIT

The RLVS has on-board current limiting to protect the controller and equipment. The limit is factory set and can be tailored to use. It “rolls back” the current to the motor to prevent damage to the controller in the event of prolonged overload.

2.32 ACCELARATION AND DECELERATION

The RLVS contains a ramp generator to soften the response to sudden changes in the speed pot setting. The ramp time is factory set to approx. 2 seconds. It can be also be factory set to other ramp times. Please consult the factory.

2.33 POTENTIOMETER SCALING

The RLVS design allows the use of conventional potentiometers. The control can be tailored to suit the particular pot mechanism employed.

2.34 POTENTIOMETER LOSS CIRCUIT

If for any reason the Pot high or pot low connection fails, the motor will be reduced to zero volts.

2.35 REVERSE POLARITY PROTECTION

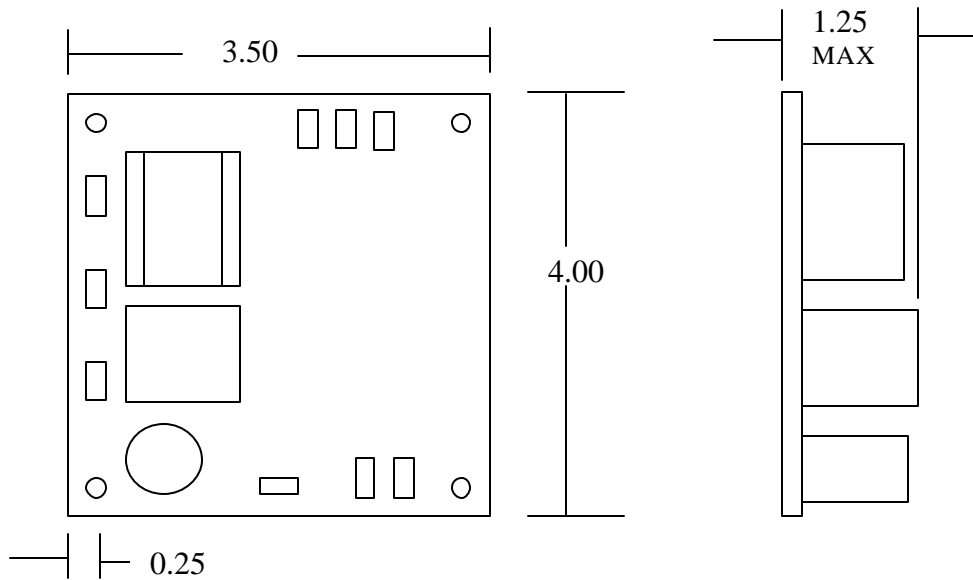
When connecting the battery or low voltage power source to the RLVS, if the polarity is inadvertently reversed, the "Power-on" relay will not operate. This protects the logic circuitry and prevents the controller from operating.

SECTION THREE INSTALLATION

3.1 ENCLOSURE CONSIDERATIONS

The **RLVS1215** has mounting holes for customer use. Ideally, the controller should be mounted vertically with the heatsink fin in the vertical position. Horizontal mounting is acceptable. However, horizontal mounting with the heatsink below the PC board is **not** recommended.

Adequate free air movement should be provided for proper cooling. In addition, the ambient temperature should be between zero and 50 degrees C. Operation at higher temperatures is possible, but the controller output will be derated.



3.2 POWER WIRING

Power and motor leads should be kept as short as possible. The leads should be capable of carrying 15 Amperes on a continuous basis and should meet all local code requirements.

WARNING DO NOT ATTEMPT TO APPLY VOLTAGES IN EXCESS OF 12 VOLTS DC TO THE B+ AND B- TERMINALS OR PERMANENT DAMAGE WILL OCCUR TO THE CONTROLLER.

3.3 SIGNAL WIRING

The potentiometer and switch wiring must be capable of carrying one Ampere. Generally it is not necessary to use shielded cable unless erratic operation occurs.

3.4 TERMINAL DESCRIPTIONS

All customer control wiring is made to the connection point on the controller PC board. A description of the terminals and their function is as follows:

B+	Battery Positive power connection
B-	Battery Negative power connection
M+	Motor Positive power connection
M-	Motor Negative power connection
SW	On/Off Switch signal connections-These (2) terminals must be connected to activate the controller. This connection can be made thru and “ON/OFF” switch. This is a low power connection and does not carry motor current.
PH	Potentiometer “High” signal connection <ul style="list-style-type: none">▪ This is the leftmost tab on the control potentiometer
PW	Potentiometer “Wiper” signal connection <ul style="list-style-type: none">▪ This is the middle tab on the control potentiometer
PL	Potentiometer “Low” signal connection <ul style="list-style-type: none">▪ This is the rightmost tab on the control potentiometer