2. One heavy-duty rectifier diode is installed on the mini 30 P.C. board for use with the motor that will be connected to the unit. The diode prevents current from flowing through the motor in the wrong direction, reduces the amount of electrical noise that the motor creates, and ensures predictable performance of the mini 30.
3. Connect the WHITE or YELLOW wire from the side of the ESC marked “MTR” to the positive (+) terminal on your motor. Connect the BLUE wire from the side of the ESC marked “MTR” to the negative (-) terminal on your motor. NOTE: The motor wires may be cut to the appropriate length for your installation and soldered directly to the motor terminals.
4. Take care when connecting a battery to the mini 30. Because the mini 30 is designed for ultra-light weight applications, no connector is provided for battery hook-up. Should you elect to install mating connectors between the battery and the ESC, your best bet is to use moderate capacity connectors (Sermos or Deans) between the mini 30 and the battery terminals or solder the wiring directly to the battery pack. Industry standard servo-type connectors are *not* suitable as they cannot handle the current requirements of the motor. Make certain that the ESC switch is in the off position. Connect the RED wire from the side of the ESC marked “BATTERY” to the positive (+) terminal on your battery. Connect the BLACK wire from the side of the ESC marked “BATTERY” to the negative (-) terminal of the battery. Be sure to maintain proper polarity between the battery and the mini 30. Failure to do so will result in damage to the unit not covered by warranty!

TESTING THE mini 30 WITH YOUR RADIO SYSTEM

The mini 30 is factory calibrated. No adjustment is required for it to interface properly with your R/C equipment. To verify proper operation of the mini 30 with your equipment, proceed as follows:

1. Make certain the mini 30 power switch is OFF.
2. Charge the battery pack completely.
3. Make certain the aircraft cannot move when the motor is turned on and that the propeller is free of obstructions (including body parts).
4. Turn the transmitter power ON.
5. Position the transmitter throttle and trim control to OFF.
6. Turn the mini 30 power switch ON.
7. Slowly increase throttle control on the transmitter. The motor should turn. If the motor does not turn, try reversing the throttle channel at the transmitter and repeat steps 1 through 7.
8. If you encounter problems, check to make certain all interconnections are made in accordance with the section titled INSTALLATION. If you require further assistance, contact the technical department at FMA (301) 668-7614.

FMA LIMITED WARRANTY ON ELECTRONIC SPEED CONTROLLER PRODUCTS

FMA, Inc. warrants this speed controller to be free of manufacturing defects for the term of 90 days from the date of purchase. Should any defects covered by this warranty occur, the speed controller shall be repaired or replaced with a unit of equal performance by FMA, Inc., or an authorized FMA service station.

LIMITS AND EXCLUSIONS

This warranty may be enforced only by the original purchaser, who uses this speed controller in its original condition as purchased, in strict accordance with the mini 30 owner's manual. Speed controllers returned for warranty service to an FMA service center will be accepted for service when shipped post-paid, with a copy of the original sales slip or warranty registration form, to the service station advised by FMA, Inc.

THIS WARRANTY DOES NOT APPLY TO

1. Consequential or incidental losses resulting from the use of this speed controller.
2. Damage resulting from accident, misuse, abuse, neglect, electrical surges, reversed polarity on connectors, lightning or other acts of God.
3. Damage from failure to follow instructions supplied with the product.
4. Damage occurring during shipment of the product either to the customer or from the customer for service (claims must be presented to the carrier).
5. Damage resulting from repair, adjustment, or any alteration to product by any one other than an authorized FMA technician.

mini 30

MODEL SC30 HI FREQUENCY, MICROPROCESSOR CONTROLLED, MINIATURE AIRCRAFT SPEED

OWNER'S MANUAL

NOTE: PLEASE READ MANUAL COMPLETELY BEFORE OPERATION

INTRODUCTION:

Thank you for purchasing the FMA Direct / RCLine mini 30 miniature aircraft electronic speed controller (ESC). The mini 30 is one product in a family of quality ESC devices available from FMA, Inc. Designed from the ground up to offer fast and efficient throttle control and prop brake, the mini 30 incorporates the latest in high current / low loss *MOSFET* devices. Featuring high-frequency operation, this microprocessor-controlled ESC will provide smooth throttle response at a continuous current draw of up to 30 amps. Perhaps most importantly, with its tiny footprint and light weight (.60 oz), the mini 30 may be installed in even the smallest aircraft, including indoor R/C models. The built-in battery eliminator circuit (BEC) and low voltage cutoff features of the mini 30 further reduce over-all system weight and size by eliminating the need for a separate battery pack to power the R/C equipment installed in the aircraft.

SPECIFICATIONS:

SIZE:	**1.10"L X 0.72"W X 0.37"H**
WEIGHT:	**0.60 OUNCES**
FUNCTION:	**FWD, PROP BRAKE, B.E.C., LOW VOLT. CUT-OFF, RESTART**
INPUTS / CONNECTIONS:	**5 TO 10 CELL NICAD BATTERY - 1 R/C RECEIVER**
OUTPUT CAPABILITIES:	**1 D.C. MOTOR - DOWN TO 20 TURNS**
MAIN CONTROL:	**MICROPROCESSOR**
SECONDARY CIRCUITRY:	**OVER TEMPERATURE SAFETY CUTOFF**
FREQUENCY:	**1.5 kHz**
CONTINUOUS CURRENT:	**52 AMP (FET RATING) - 30 AMP (TESTED)**
PEAK CURRENT:	**400 AMP (FET RATING)**
RDS:	**2.75 m OHM**
B.E.C. SPECS:	**5V / 1A**

INSTALLATION: RECEIVER / MOTOR / BATTERY CONNECTIONS

1. Plug the three wire servo type connector into the throttle output on your receiver. The mini 30 comes equipped with a “JR” style connector making it automatically compatible with any standard servo configuration whereby the battery and signal polarity is negative, plus, signal. ***CAUTION: DO NOT ATTEMPT TO INTERFACE THE STANDARD CONNECTOR PROVIDED WITH THE UNIT TO AN “OLD STYLE” AIRTRONICS RECEIVER OR DAMAGE WILL RESULT TO THE SPEED CONTROLLER AND THE RECEIVER NOT COVERED BY WARRANTY!*** Should you elect to interface the mini 30 to an “old style” Airtronics receiver, the proper connector shell is provided for this purpose. Follow the directions included with the shell to replace the standard JR type connector shell with the Airtronics shell. Make certain to maintain the proper polarity as indicated in the illustration. Remember, “old style” Airtronics connectors are the reverse polarity of industry standard and are wired positive, negative, signal! If you are unsure of the polarity of your receiver, contact your local dealer or phone FMA Direct immediately at (301) 668-7614 for assistance!

FMA, Inc.
5716A Industry Lane
Frederick, MD 21704
Sales: (800) 343-2934 -Technical: (301) 668-7614

FMA Direct

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