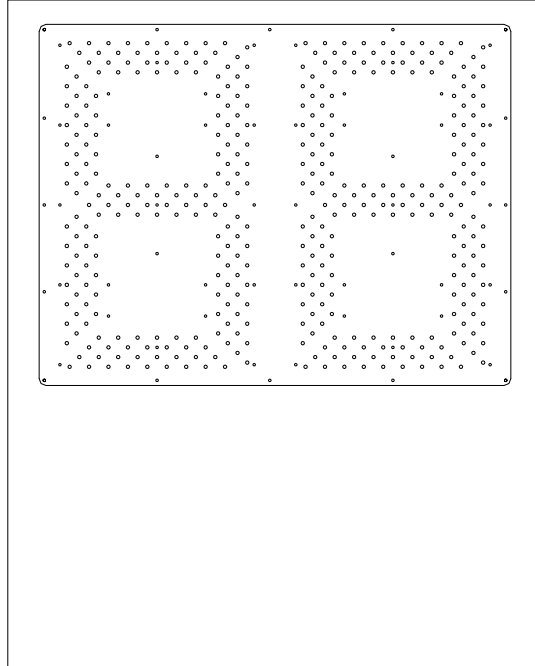


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## **ELECTRO-MECH SCOREBOARD CO.**



### **3050 FOOTBALL DELAY OF GAME TIMER**

### **OWNER'S HANDBOOK**

Thank you for choosing an Electro-Mech Scoreboard Company product for your athletic complex. We are confident that it will provide many years of reliable service.

Rev. 4 Revised: 02/13/2007

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## SPECIFICATIONS

**GENERAL:** Customers normally purchase a set of two delay of game timers. This ETL listed product includes the cabinet, mounting hardware, 10 ft. extension cable, and junction box. It may be purchased with or without a control console.

**DIMENSIONS:** 38.6875" L x 48" H x 6" D (3050 with a side sponsor panel measures 73.5" L x 35" H x 6" D)

**WEIGHT:** 45 lbs (3050 with side sponsor panel: 60 lbs)

**CONSTRUCTION:** The outer frame is made from extruded aluminum. Internal structural parts may be extruded aluminum or formed from aluminum sheet. The face and back are made from aluminum sheet. The face and masks are finished with enamel paint. Black is the standard color.

**DISPLAY:** The 3050 delay of game timer is a two digit counter which can be set from 1 to 99 seconds.

**DIGITS AND INDICATORS:** Red light emitting diodes mounted on printed circuit boards form the two 24" digits.

**POWER REQUIREMENTS:** **Model 3050** - 120 VAC, 0.4 A, 60 Hz. **Control Console** - 120 VAC, 0.5 A, 60 Hz

**ELECTRONICS:** 100% solid state fully enclosed.

**CONTROL CONSOLE:** The control console features a microprocessor, 37 key sealed membrane keypad, a LCD display, and an attached 6 foot power cord. The console housing consists of ABS plastic base and top pieces with a steel back plate.

**CONTROL CABLE:** The cable has two 22 AWG stranded copper conductors with semi-rigid PVC insulation. It also has a braided shield and a foil shield. The polyethylene jacket is rated at 300 volts. The cable is direct burial rated and measures approximately 1/4" in diameter. This item is sold separately from the product.

**JUNCTION BOX AND EXTENSION CABLE:** A 4 1/4" x 2 1/4" x 2" junction box with a 1/4" stereo jack mounted on the face plate is attached to the control cable at the point of operation. A 10 ft. extension cable connects the control console to the junction box.

**SL-320 RF MODEM SYSTEM:** This accessory can be used in place of control cable and junction box for this model 3050 without internal modifications to the product or the control console. Refer to the SL-320 RF MODEM SYSTEM OWNER'S HANDBOOK for more information.

**WARRANTY:** Five year limited warranty.

## INSTALLATION

This part of the manual describes the mechanical and electrical installation of the product.

One of the items listed below must be purchased in order to complete the installation:

- Control cable (length dependent upon installation site layout)
- ScoreLink 300 RF Modem System

Items not provided by Electro-Mech Scoreboard Company that are necessary for installation:

- Four posts (two for each unit)
- Power cables to connect each unit to the power source
- Grounding hardware
- A grounded NEMA 5-15R 120 VAC receptacle for the control console at the scorekeeper's table.

Items not provided that are recommended by Electro-Mech Scoreboard Company for installation:

- A weatherproof power disconnect at each unit

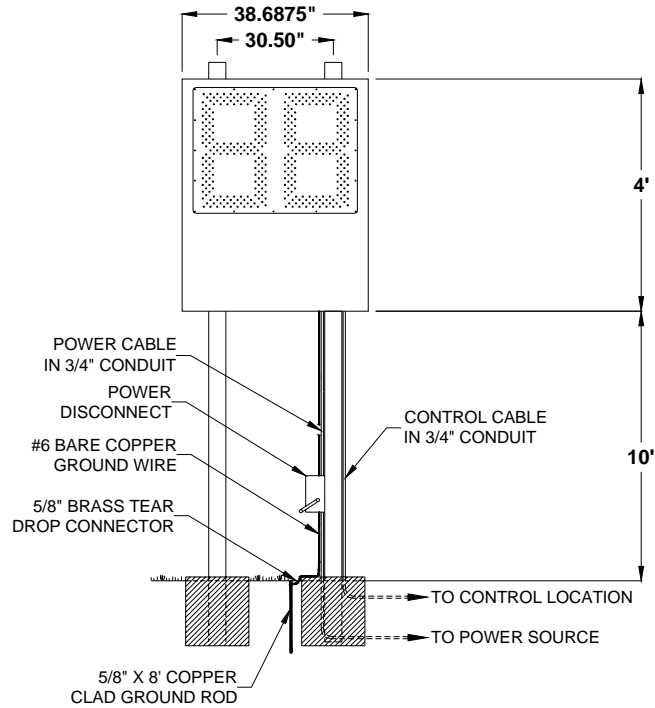
Electro-Mech Scoreboard Company performs installations in some areas. In other areas, we can help you contact an independent installer. In areas in which installation service is not available from Electro-Mech Scoreboard Company, we will make every effort to answer your installation questions. Qualified personnel should perform the product installation. Consult national and local codes before installation.

## MECHANICAL INSTALLATION

The mechanical installation includes installing the posts and mounting the model 3050 and the optional top sponsor panels (if purchased) to the posts.

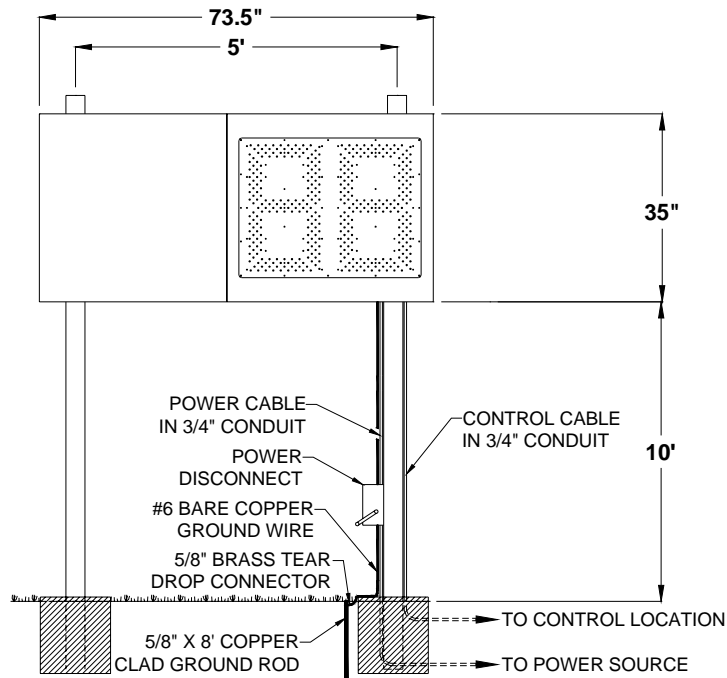
### Post Installation

The model 3050 delay of game timer mounts on two posts. Typically installers will use steel pipes or I-beams. In order to reduce the glare from the sun on the LED digits, position the posts so that the front of the cabinet is angled away from the afternoon sun, if possible. The mounting hardware will accommodate posts up to 4.5 inches outer diameter. Sink the posts in reinforced concrete footings. Figure 1 shows the spacing of the posts for a 3050 delay of game timer. The specifications for the posts and concrete footings are dependent upon the expected local wind and soil conditions, the height of the product from the ground, and the local building codes. Electro-Mech Scoreboard Company assumes no responsibility for the installation of products by others.



**Figure 1 3050 Post Spacing**

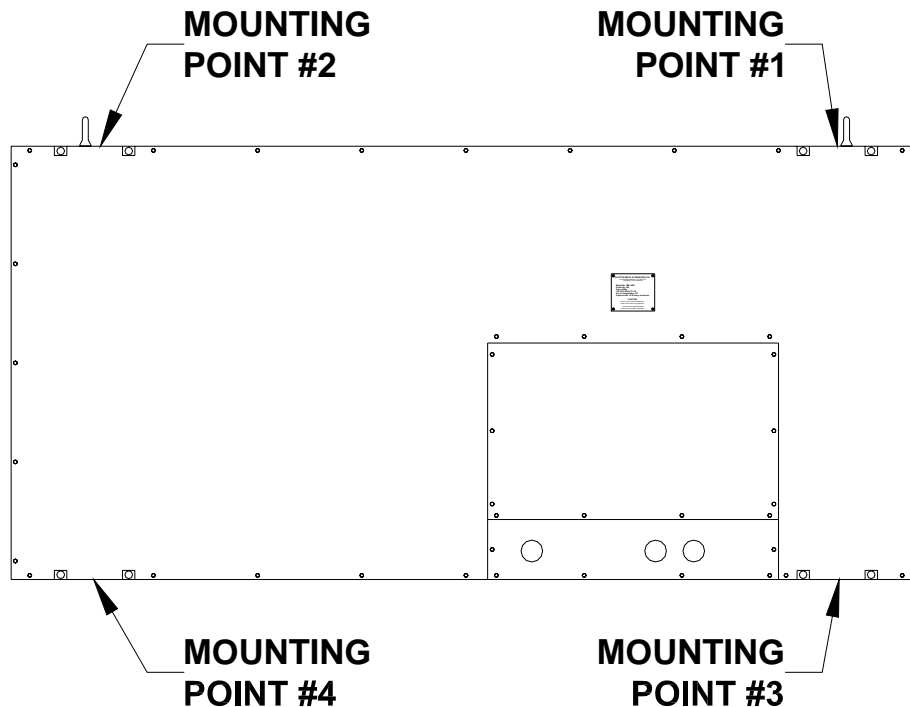
Figure 2 shows the spacing of the posts for a model 3050 with an optional side sponsor panel. The sponsor panel is built into the cabinet.



**Figure 2 3050 with Side Sponsor Panel Post Spacing**

### Mounting The Model 3050 Delay of Game Timer

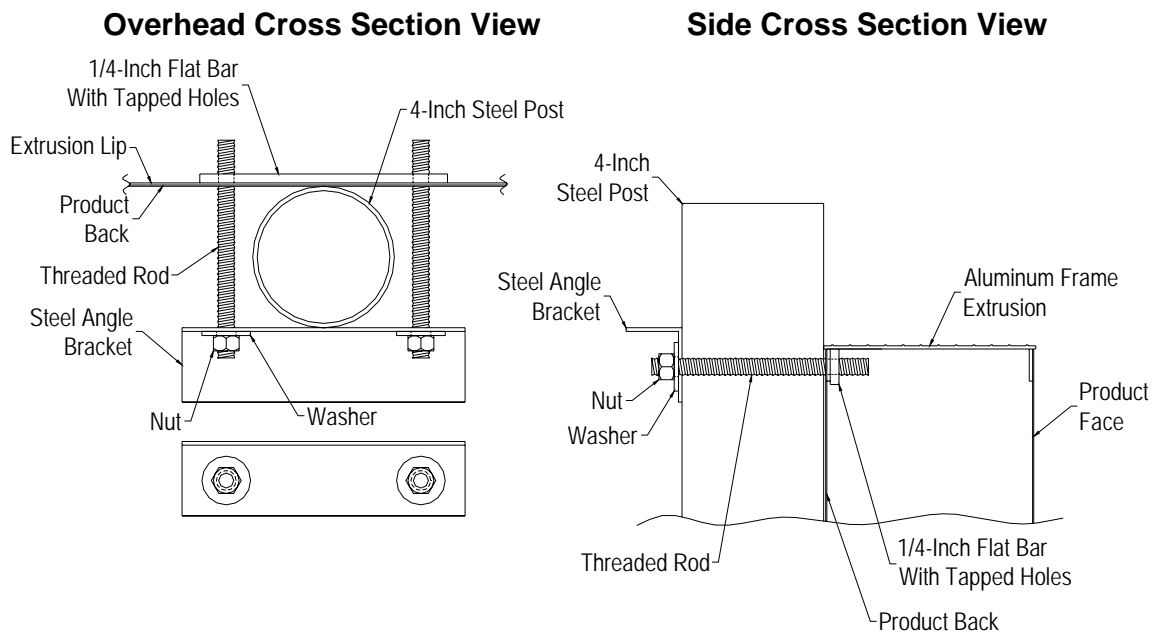
The product is attached to the posts at four points. Figure 3 shows the location of the mounting points on the rear of the cabinet.



**Figure 3 Mounting Points**

### MOUNTING HARDWARE

Four sets of mounting hardware are provided to attach the model 3050 at these points. A single set of mounting hardware for the unit consists of a steel angle bracket, two threaded rods, two washers, and two nuts. Figure 4 shows an overhead cross section view and a side cross section view of the model 3050 attached to a post at a mounting point. A steel bar is riveted inside the product's aluminum extrusion frame. The bar has two tapped holes. The threaded rods screw into these tapped holes. The washers and nuts are used to clamp the steel angle bracket against the steel post and hold the unit in place.



**Figure 4 Standard Mounting Method**

The following steps describe how to mount the model 3050 on the posts:

1. Place the cabinet against the posts on the ground. Make sure the mounting points are aligned with the posts.
2. Screw the threaded rods into the tapped holes in the cabinet.
3. Place a steel angle bracket over the threaded rods at mounting point #1.
4. Place a washer over each threaded rod.
5. Screw the nuts onto the threaded rods so that the bracket is loosely held in place.
6. Repeat steps 3 - 6 at the other mounting points.
7. Raise the cabinet into place and tighten the nuts to clamp the cabinet in place on the posts.

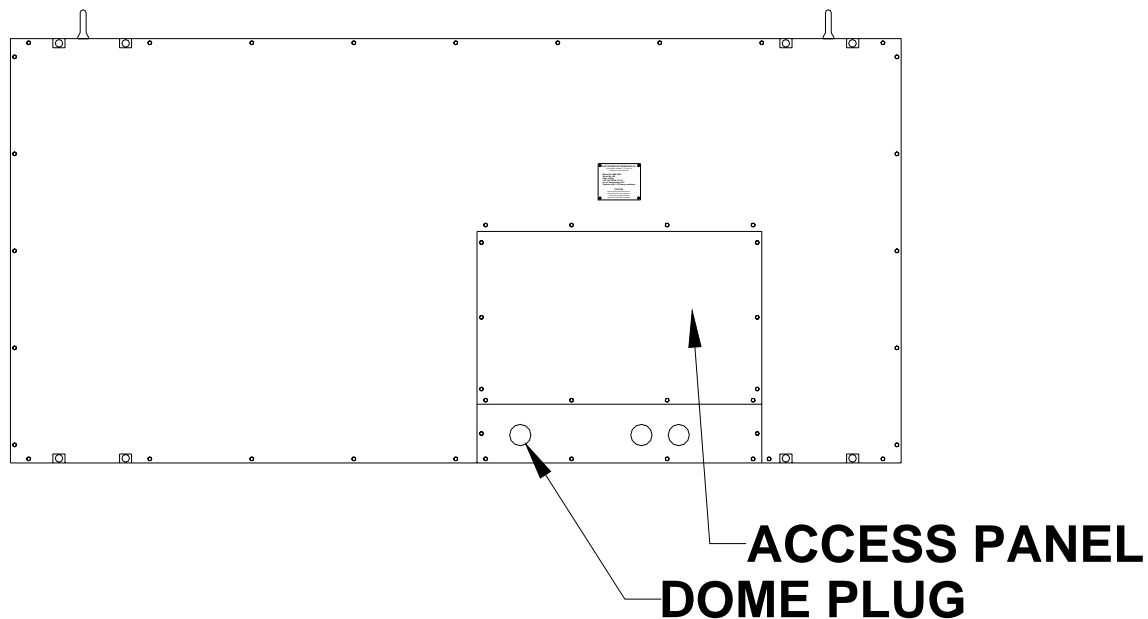
## ELECTRICAL INSTALLATION

We recommend a qualified electrician perform the needed electrical connections to ensure proper operation of the product. These connections include grounding the cabinet, connecting the product to a power source, installing the SL-320 or the control cable, and connecting the control console.

### Ground Connection

The National Electrical Code **requires** this product (an electric sign) to be grounded. Grounding the cabinet helps the electronics operate properly and helps minimize damage if it is struck by lightning. Metal posts do **not** provide an adequate ground path. The following steps describe how to ground the scoreboard:

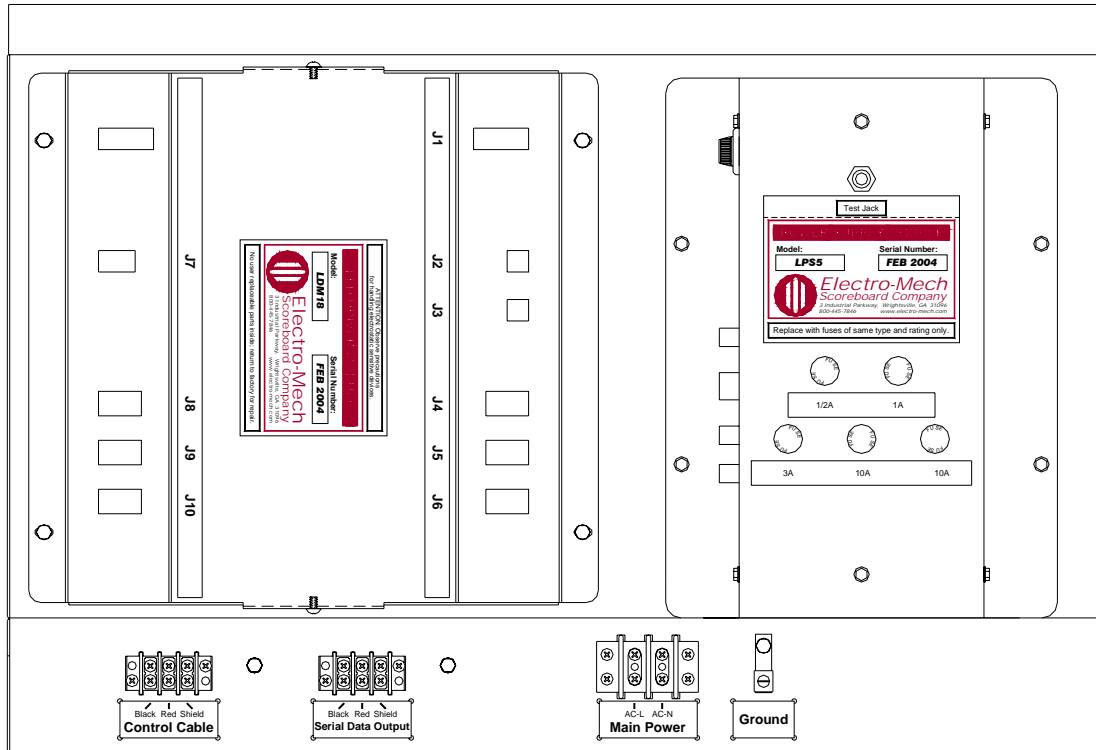
1. Drive one or more 5/8" x 8' copper clad ground rods in the soil near the model 3050.
2. Connect #6 bare copper wire to the ground rods using 5/8" brass tear drop connectors.
3. Remove the rear access panel and the dome plugs on the plate below the access panel. Figure 5 shows the location of the access panel and the dome plugs.



**Figure 5 Rear Access Panel**

4. Figure 6 shows the view behind the access panel.





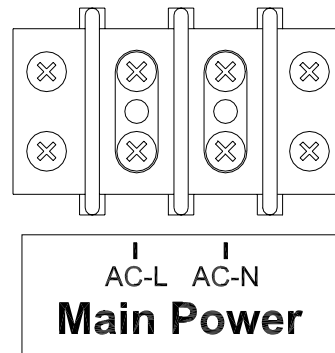
**Figure 6 Access Panel Removed**

5. Pass the ground conductor through the right hand hole in the plate below the access panel and connect it to the ground lug (**Ground**) on the junction chassis.

### Power Connections

The model 3050 requires 120 VAC service at the **Main Power** terminal block to operate properly. **Maximum power consumption of Model 3050: 48 Watts.** Make sure that power cable is rated for this electrical load. Install the power cable in conduit. **Avoid** running the power cable in close proximity to the control cable. The following steps describe how to connect the model 3050 to the power source:

1. Feed the power cables through one of the holes in the plate below the access panel.
2. Crimp fork terminals to the power cable wires.
3. Connect the power cable wires to **Main Power** terminal block on the junction chassis according to figure 7.



**Figure 7 Power Connections**

Install a power disconnect that isolates all current carrying conductors on one of the posts below the cabinet (not the ground conductor). If a secondary switch is installed near the scorekeeper's table, it should also isolate these conductors. Place the power disconnect in the **OFF** position between games to help protect the model 3050 from lightning damage. A power disconnect on the mounting post also provides a convenient way of turning the model 3050 off during maintenance or repairs.

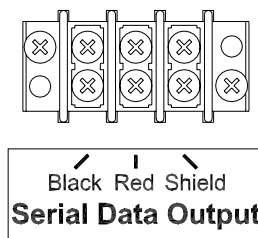
### SL-320

The SL-320 is designed to eliminate the control cable between the scoreboard and the control console on Electro-Mech Scoreboard MM and MP series scoreboards as well as all outdoor LED products. If you have purchased this accessory, disregard the section of this manual titled **Control Cable Installation**. Refer to the SL-320 OWNER'S HANDBOOK for installation instructions.

### Serial Data Output Connections

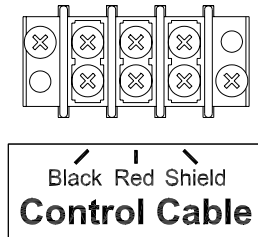
Customers who have purchased a set of delay of game timers can provide the other delay of game timer or a scoreboard with serial data from this delay of game timer. This connection is an alternative to providing serial data from the control console via the control cable or a SL-320. The following steps describe how to transmit serial data from this delay of game timer to the other delay of game timer or a scoreboard:

1. At the rear of the delay of game timer, feed data cable (same type of cable specified for control cable on page 3) through a hole in the plate below the access panel.
2. Crimp fork terminals to the cable wires and the shield.
3. Connect the cable to the terminal block labeled **Serial Data Output** on the junction chassis according to figure 8.



**Figure 8 Serial Data Output Wiring Diagram**

4. Remove the other delay of game timer or scoreboard rear access panel.
5. Feed the cable through a hole in the plate below the access panel.
6. Crimp fork terminals to the cable wires and the shield.
7. Connect the cable to the terminal block labeled **Control Cable** on the delay of game timer junction chassis according to figure 9.

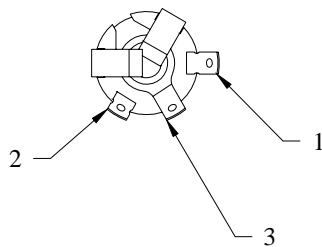


**Figure 9 Control Cable Wiring Diagram**

8. Reinstall the other delay of game timer or scoreboard rear access panel.

### Control Cable Installation

The control cable connects the scoreboard to the control console. Install the control cable in conduit. If the cable is ever damaged, it is easier and less expensive to replace a cable in conduit. A small junction box with a ¼" stereo jack mounted on the face plate is attached to the control cable at the point of operation of the scoreboard. This junction box should be securely mounted in a clean, dry area within ten feet of the rear of the control console. Most customers order the control cable with the junction box attached. Some customers prefer to attach the junction box after the cable is installed. Those customers must solder the control cable to the ¼" stereo jack. Figure 10 shows the control cable wire connection points on the rear of the ¼" stereo jack.

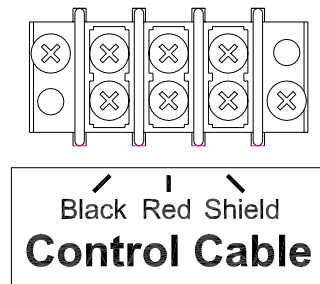


PIN 1 - BLACK WIRE  
 PIN 2 - RED WIRE  
 PIN 3 - SHIELD WIRE

**Figure 10 ¼" Stereo Jack Wiring Diagram**

The following steps describe how to connect the control cable to the delay of game timer:

1. At the rear of the model 3050 cabinet feed the control cable through the left hole in the plate below the access panel.
2. Crimp fork terminals to the control cable wires and the shield.
3. Connect the control cable to **Control Cable** terminal block on the junction chassis according to figure 11.



**Figure 11 Control Cable Wiring Diagram**

4. Reinstall the access panel.

### Control Console Connections

The 10 ft. extension cable has two molded ¼” stereo plugs attached to it. It is used to connect the control console to the junction box. The following steps describe how to connect the control console:

1. Plug one end of the extension cable into ¼” stereo jack on the junction box or the ScoreLink 300 Transmitter, if purchased.
2. Plug the other end into the ¼” stereo jack mounted on the control console back plate.
3. Plug the control console power cord into a grounded NEMA 5-15R 120 VAC receptacle.

### Control Console Safety Warning

This product is equipped with a 3-wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact a qualified electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.

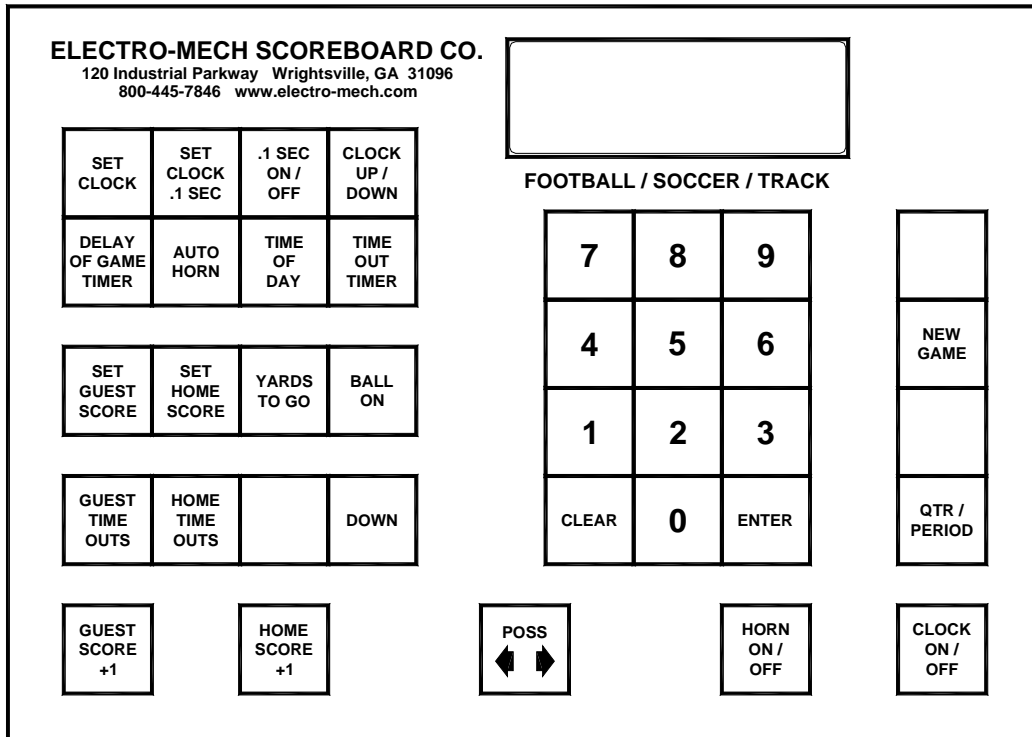
## **OPERATION**

### **STARTUP**

1. Place the power disconnect for the delay of game timer in the **ON** position.
2. Plug one end of the extension cable into ¼” stereo jack on the junction box or the SL-320 Transmitter, if purchased.
3. Plug the other end into the ¼” stereo jack mounted on the control console back plate.
4. Plug the control console power cord into a grounded NEMA 5-15R 120 VAC receptacle.
5. Plug the delay of game hand held remote into the DGT / SC Hand held jack on the control console back plate.
6. If a SL-320 RF MODEM SYSTEM is installed with this product, plug the wall mount DC power supply into a grounded NEMA 5-15R 120 VAC receptacle and the male plug on the end of the attached cable into the Power jack on the Transmitter.

### **GAME TIME OPERATION**

The model 3050 is used to monitor the time between plays during a football game. It counts down from a time programmed in the control console to 0. The scorekeeper can set this time from 1 to 99 seconds. The default set time inside the control console is 25 seconds. The delay of game hand held unit is used to start, stop, and reset the delay of game timer. The model 3050 delay of game timer is operated with a 37-key control console. The control console can also control some MP and outdoor LED football scoreboards. Figure 12 shows the keypad layout on the control console.



**Figure 12 Keypad Layout**

**Control Console Operation**

Immediately after the control console power cord is plugged into a 120 VAC source, the console LCD display will read:

ELECTRO-MECH 276  
 SCOREBOARD MPFB

After a few seconds the display will read:

00 D15: 00 0 00  
 3 00 00 0 3

The LED digits are initially off when the power to the delay of game timer is turned on.

### Control Console Key Functions

1. **DELAY OF GAME TIMER** – The console is programmed to control a set of delay of game timers. The delay of game timer is preset to 25 seconds, but can be set to any time from 1 to 99 seconds. Changes to the delay of game timer time should be done prior to the start of a game. To change the delay of game timer time, press [SET DELAY OF GAME TIMER]. The console LCD display will read:

```
00  D15: 00 0  00
DELAY TIME  <25>
```

Press the keypad numbers to set Delay of Game Timer, [ENTER].

2. **NEW GAME** – This key is used to reset all the control console functions to their default settings. To reset the control console, press [NEW GAME]. The console LCD display will read:

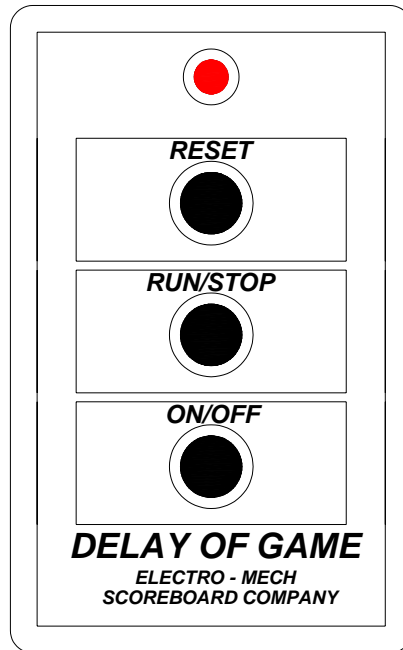
```
RESET  YES<1>
SCOREBOARD NO<0>
```

Press [1], [ENTER] on the control console. The control console will reset its functions.

The other keys are not used with the model 3050, but may be used for a football scoreboard.

### Delay Of Game Timer Hand Held Unit Operation

As seen in figure 13, the hand held unit has three buttons. The operation of the buttons is described in the text below the figure.



**Figure 13 DELAY OF GAME TIMER HAND HELD UNIT**

#### **Hand Held Unit Functions**

1. **ON/OFF** – This button is used to turn the delay of game timer digits on and off. The delay of game timer will initialize to 0 seconds when the digits are turned on.
2. **RUN / STOP** – This button starts and stops the delay of game timer operation.
3. **RESET** – When the digits are turned on, this button is used to reset the delay of game timer to the time programmed in the control console (default time is 25 seconds).

You should reset the control console each time that it is turned on. Test out all the functions to ensure that the model 3050 is operating properly.

#### **SHUTDOWN**

1. Place the power disconnect for the model 3050 in the **OFF** position.
2. Unplug the control console power cord.
3. Unplug the extension cable.
4. If a SL-320 is installed, unplug the Transmitter's wall mount power supply.
5. Store the control console and SL-320 Transmitter in a dry location. These units are not waterproof.

Proper shutdown will help protect the model 3050 and control console from power surges and lightning strikes.



## SERVICING THE DELAY OF GAME TIMER

While your delay of game timer was designed for years of trouble-free operation, some problems may occasionally occur. Electro-Mech Scoreboard Company offers onsite service in some areas. In other areas, we can help you contact an independent service technician. In areas in which service is not available from Electro-Mech Scoreboard Company, we will make every effort to answer your questions. Our trained personnel at Electro-Mech Scoreboard Company are ready to answer your questions from Monday to Friday during the hours of 8 AM to 5 PM Eastern Standard Time. Be sure to know your model number when calling. Replacement parts are always available. Damaged parts can usually be repaired at a significant cost savings. Our convenient toll free number is listed at the bottom of every page in this manual.

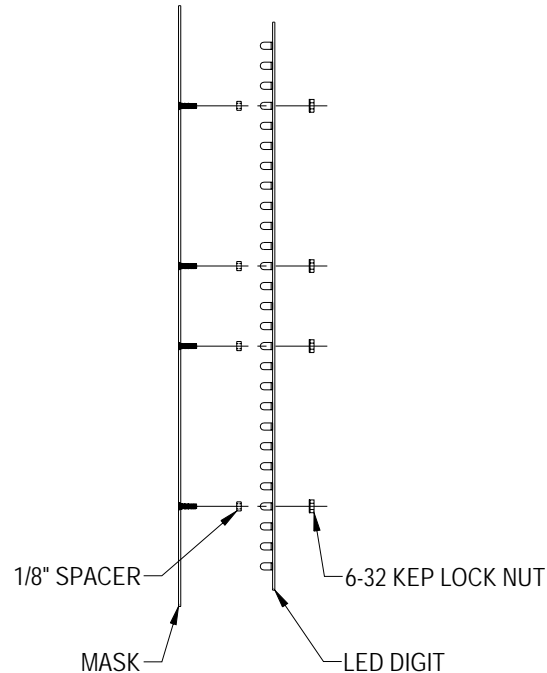
If the model 3050 turns on LEDs, but does not operate normally, make note of which functions are affected. If some LEDs either never turn on or always stay on, make note of their specific locations on the digits. Refer to the COMPONENT REPLACEMENT section of this manual before changing parts.

## COMPONENT REPLACEMENT

LED digits are serviced from the front of the delay of game time cabinet.

### LED Digits Replacement

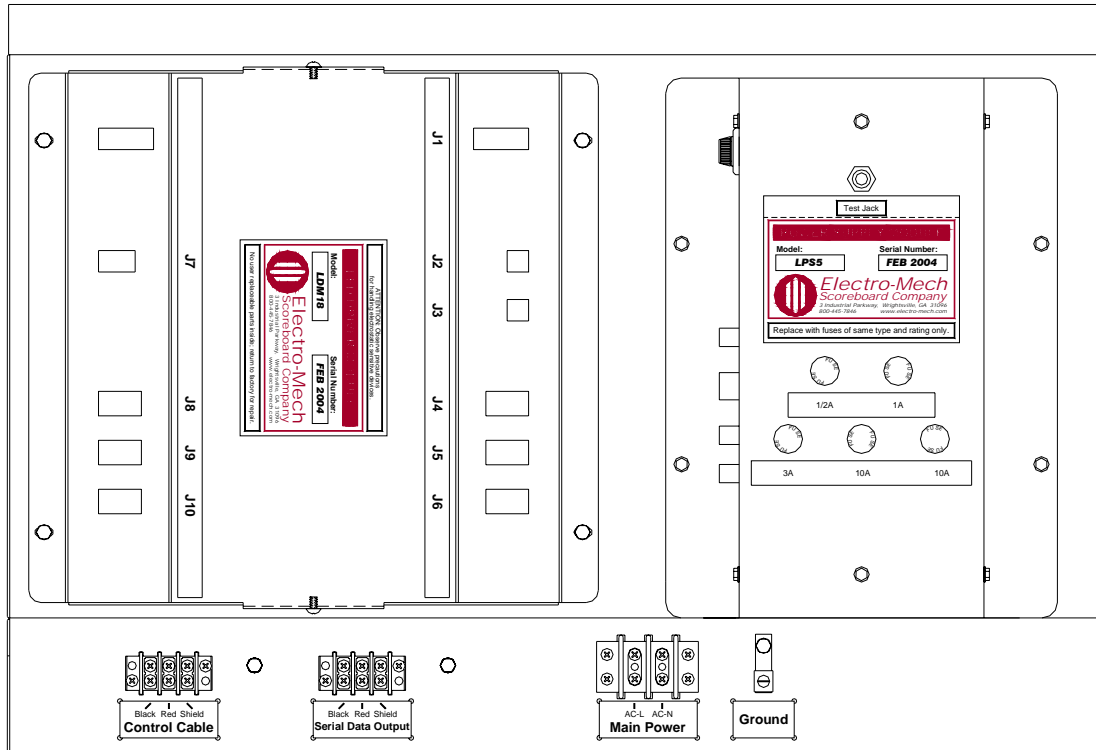
The LEDs that form digits are soldered on circuit boards mounted behind a metal mask. Do not attempt to replace individual LEDs. In case of a malfunction, the entire LED circuit board must be removed. **To avoid damage to the LED driver module, always turn off the power to the delay of game timer when removing or replacing digits. Observe proper handling procedures to prevent static damage to the circuit boards.** Figure 14 shows the components of a LED digit assembly.



**Figure 14 LED Digit Assembly**

1. Remove the sheet metal screws that fasten the mask to the face of the model 3050. **Caution: Support the mask with before removing the last screw. The ribbon cables that connect to the rear of the circuit boards are not designed to support the weight of the assembly.**
2. Disconnect the ribbon cables and the wire assemblies from the rear of the LED digit circuit boards. **Caution: Do not let the cables hang outside of the model 3050. Ribbon cables easily cut by sharp metal edges. Damage to a ribbon cable may create short circuit paths that will damage the LED driver module.**
3. Place the assembly on a flat surface and remove the 6-32 kee lock nuts that hold the defective digit in place.
4. Remove the LED digit.
5. Remove the standoffs from the LED digit and install them in the same locations on the new LED digit.
6. Align the mounting holes in the new LED digit with the threaded studs on the mask and install it on the mask.
7. Fasten the LED digit in place with the 6-32 kee lock nuts.
8. Plug the ribbon cables and wire assemblies onto the proper connectors on the back of the LED digits.
9. Re-install the mask on the face of the cabinet.

All other components are located behind the rear access panel. Figure 15 shows the view behind the access panel.



**Figure 15 Access Panel Components**

### LDM18 LED DRIVER MODULE FUNCTIONS

DRIVER MODULE JACK	FUNCTION
J1	DRIVER MODULE DC POWER INPUT
J2	SERIAL DATA INPUT
J3	SERIAL DATA OUTPUT
J4	SECONDS UNITS LED DIGIT
J5	SECONDS TENS LED DIGIT

### LED Driver Module Replacement

Electrical connections to the LDM18 LED DRIVER MODULE are made with ribbon cable polarized IDC sockets and locking ramp crimp terminal housings that mate with jacks on the module. The module is secured inside the model 3050 cabinet with four machine screws.

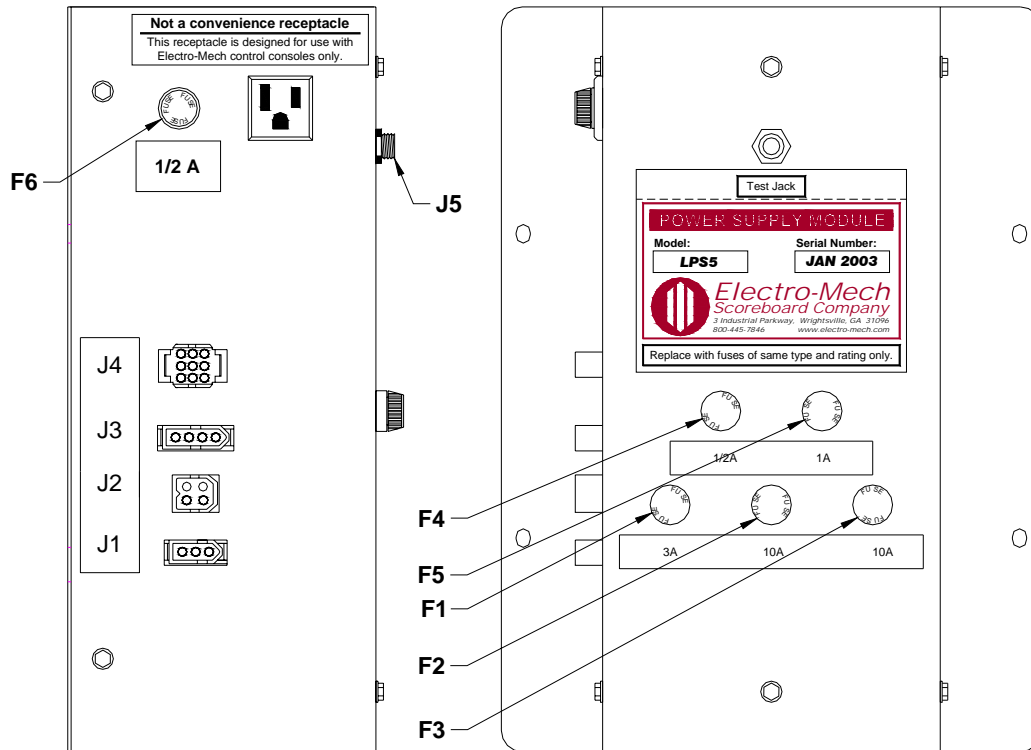
1. Unplug the electrical connections from the module. Do not cut the plastic tie wraps around the ribbon cables.
2. Remove the four screws.
3. Remove the module from the cabinet.
4. Insert the replacement module in the cabinet.
5. Secure the module with the four screws.
6. Insert the plugs into the jacks on the module.

To avoid damage to the module, always turn off the power to the model 3050 when removing or replacing it.

**LPS5 LED POWER SUPPLY MODULE FUNCTIONS**

JACK	FUNCTION
J1	120 VAC INPUT
J2	20 VDC OUTPUTS
J3	SERIAL DATA INPUT / OUTPUT
J4	12 VDC RELAY FUNCTIONS (NOT USED ON THIS PRODUCT)
J5	SERIAL DATA TEST JACK

A relay inside the LPS5 Power Supply Module isolates the LDM12 LED Driver Module from the control cable when the model 3050 is shut down. Connecting the control console to J5 with the 10 ft. extension cable bypasses this relay. Figure 16 shows the location of the fuses in the LPS5 LED Power Supply Module. The table following the figure lists the fuse ratings, functions, and part numbers.



**Figure 16 LPS5 Fuse Locations**

**LPS5 FUSES**

FUSE	RATING	FUNCTION	BUSSMAN PART #
F1	3A 250V	TRANSFORMER PRIMARY	AGC-3
F2	10A 250V	DRIVER MODULE DC POWER INPUT #1	AGC-10
F3	10A 250V	DRIVER MODULE DC POWER INPUT #2	AGC-10
F4	½A 250V	SERIAL DATA ISOLATION RELAY	AGC-1/2
F5	1A 250V	12 VDC RELAY OUTPUT (NOT USED ON THIS PRODUCT)	AGC-1
F6	½A 250V	120 VAC ELECTRICAL RECEPTACLE	AGC-1/2

Note: Other manufacturer's fuses may be substituted for the Bussmann fuses.

**LED Power Supply Module Replacement**

Electrical connections to the LED POWER SUPPLY MODULE LPS5 are made with four keyed plugs that mate with jacks on the left side of the module. The module is secured inside the cabinet with four machine screws.

1. Disconnect the plugs from the jacks on the side of the module.
2. Remove the four screws.
3. Remove the module from the cabinet.
4. Insert the replacement module in the cabinet.
5. Secure the module with the four screws.
6. Insert the plugs into the jacks on the side of the module.

**To avoid damage to the module, always turn off the power to the model 3050 when removing or replacing it.**

## ELECTRO-MECH SCOREBOARD CO. FIVE YEAR LIMITED WARRANTY

THE ELECTRICAL COMPONENTS OF ALL ELECTRO-MECH SCOREBOARDS ARE GUARANTEED FOR A PERIOD OF FIVE (5) YEARS FROM THE DATE OF INVOICE AGAINST DEFECTS IN WORKMANSHIP OR MATERIAL AND WILL BE REPLACED OR REPAIRED WITHOUT COST TO THE OWNER PROVIDED THE EQUIPMENT OR PARTS ARE RETURNED POSTAGE-PAID TO THE FACTORY IN WRIGHTSVILLE, GA. SHIPPING BACK TO THE OWNER WILL BE VIA UPS GROUND SERVICE EXCEPT WHEN AIR OR SPECIAL METHOD OF RETURN IS SPECIFIED BY THE OWNER, IN WHICH CASE SHIPPING WILL BE FREIGHT COLLECT.

EXCLUDED FROM THIS WARRANTY ARE FUSES.

THIS WARRANTY DOES NOT INCLUDE LABOR CHARGES INCURRED IN THE REMOVAL OF COMPONENT PARTS, SERVICE CALLS, OR DAMAGES RESULTING FROM IMPROPER INSTALLATION, IMPROPER OPERATION, OR PROBLEMS CAUSED BY ANY REPAIR, ALTERATION OR MODIFICATION OF THE SCOREBOARD NOT PERFORMED BY ELECTRO-MECH.

EQUIPMENT WHICH IS SUBJECTED TO ACCIDENT, NEGLIGENCE, ABUSE, MISUSE OR OTHER NATURAL DISASTERS, INCLUDING BUT NOT LIMITED TO FIRE, WIND, LIGHTNING, OR FLOOD, IS NOT COVERED BY THIS GUARANTEE.