



**MEI** *Martronic Engineering, Inc.*



**Laser Leveling Control**



**Model 308-GPS  
OPERATING MANUAL  
GPS Machine Control System  
With Proportional Valve Drivers**

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## Model 308-GPS

### OPERATING MANUAL

#### **OVERVIEW ❖**

The 308 Machine Control System is a powerful addition to your land leveling and earth moving machinery, yet it is easy to use. Some of the many features are as follows:

- ◆ COMMUNICATES WITH A GPS RECEIVER TO CONTROL A BLADE
- ◆ BLADE DRIVE OFFERS A PROPORTIONAL OUTPUT SPEED CONTROL FOR BOTH STANDARD AND PROPORTIONAL VALVES
- ◆ JOHN DEERE, CASE, AND MOST OTHER TRACTORS CAN BE INTERFACED DIRECTLY WITH OPTIONAL CONVERSION, NO VALVES NECESSARY
- ◆ DANFOSS OPEN CENTER PROPORTIONAL VALVE DRIVERS AVAILABLE.
- ◆ COMPACT SIZE FOR EASY MOUNTING

#### **CONTROLS ❖**

##### **BLADE UP/DOWN**

OVER-RIDE SWITCH THAT MOVES THE BLADE AT FULL SPEED EITHER UP OR DOWN. ACTIVATION OF THIS SWITCH DISABLES THE "AUTO" FUNCTION UNLESS CHANGED IN MENU ITEM 5 TO TOGGLE.

##### **AUTO BUTTON**

ENABLES THE AUTO FUNCTION SO ERROR DATA FROM THE GPS RECEIVER WILL CONTROL THE BLADE ELEVATION.

## OPERATING MODES ❖

Pressing the SELECT button wakes the Model 308 from the SLEEP mode. The ELEVATION display lights show the error signal received from the GPS. Pressing the “SELECT” button turns the unit ON and OFF.

### LED's UNLIT:

The hydraulics can be manually controlled with the “BLADE” switches. The blade can also be controlled automatically by pushing the “AUTO” button.

### SLEEP:

Pressing the “SELECT” button will, after a short delay, put the Model 308 into the “SLEEP” mode. Though the display goes dark, all the changes made will be stored as default until reprogrammed.

### OTHER LED DISPLAYS:

Not used with the GPS Input System

## MENU ITEMS ❖

The menu allows you to change the factory default settings. You may customize the system to suit equipment requirements, or to your personal preference.

To open the “MENU” press the “AUTO BLADE” and “SELECT” buttons at the same time. The display will show the flashing menu “**Number**” on the left and the menu “**Value**” on the right. The “+” button will allow scrolling through the “**Number**” list. The “**Select**” button allows cycling between the “**Number**” and the “**Value**”. The “+” and “-” buttons will change the setting of the “**Number**” function selected. When all changes are made, the “**Auto Blade**” button stores these changes, resets all registers, and reactivates the system.

**Below is a list of the menu numbers and the factory values.**  
**NOTE: The new settings are automatically recorded on permanent memory. These new settings may be changed by reentering the menu mode and resetting the values. It is also possible to return to the factory default settings by powering up the system while depressing the “ - ” button.**

#	NAME	DESCRIPTION
0	CENTER WIDTH	NORMALLY 2, FOR +/- .02 FEET DEADBAND
1	BLADE DOWN SPD	SLOWEST POSSIBLE SPEED CLOSE TO CENTER
2	BLADE UP SPEED	SLOWEST POSSIBLE SPEED CLOSE TO CENTER
3	BLADE RAMP	BLADE SPEED INCREASE AS ERROR INCREASES
4	OUTPUT REVERSE	REVERSES DIRECTION OF SOLENOID DRIVE
5	VALVE TYPE	0-ON/OFF 1-PROPORTIONAL 2-JD/CASE 10 OR 11 TOGGLE
6	CODE LETTER	1 = S; 2 = T; 3 = L; 4 = M
7	ENCLOSURE TYPE	0-NORMAL, 1-BEHIND SEAT, NO CONTROLS
8	OFFSENSOR TIME	0-99 X 10 MS OF TIME A GPS INPUT IS HELD 35 = 350 MS OF BLADE MOVEMENT
9	CENTERTIME	0-99 X 10 MS OF TIME CENTER SIGNAL IS HELD 30 = 300 MS OF NO BLADE MOVEMENT WITH CENTER
10	LOADSENSETIME	0-99 X 10 MS OF TIME LOAD SENSE SOLENOID IS ACTIVE; 20 = 200 MS – A 5 HZ UPDATE WOULD KEEP LS ON CONTINUOUSLY

## **OTHER FEATURES ❖**

### **BLADE DRIVE:**

The blade drive circuit offers a proportional output speed with either a standard valve or a proportional valve. The standard valve will have a pulsing effect on the hydraulic system, so the proportional valve is a superior choice. The menu allows the operator to set a starting speed on the smallest error signal and the ramp speed to increase the speed of the blade as the error increases. This allows for high blade speed on override, or large error signals, without the overshoot problems other types of sensors generally experience.

### **COMPENSATED PUMP OUTPUT:**

Many tractor hydraulic systems employ a low pressure stand-by and require a signal to activate the pump. The 308 offers a separate output that maintains full pump pressure where high oil volume is required.

### **SOLENOID DRIVE OUTPUTS:**

All power outputs have automatically resetting fuse links. If a short circuit should occur in one of the functions, only that function would be disabled. When the problem is corrected, the 308 Panel will automatically restore power.

### **DATA OUTPUT:**

The 308 Control Panel has a standard RS-232 output which can be attached to a laptop computer, serial printer, or memory module. The data is formatted as standard ASCII code and serially transmitted at 9600 BAUD, 8 DATA BITS, and NO PARITY. Input data from the GPS uses this connector and format.

## **OUTPUT CABLE CONNECTIONS ❖**

### **POWER INPUT CABLE (2 PIN CONNECTOR)**

A	BLACK	Chassis Ground
B	RED	12 OR 24 VDC Input

### **HYDRAULIC CABLE (4 PIN CONNECTOR)**

A	COMPENSATOR OUTPUT
B	GROUND
C	DOWN DRIVE
D	UP DRIVE

OPTIONAL OUTPUTS FOR JD/CASE & OTHER TRACTORS  
OR DANFOSS OPTION CHANGES CONNECTOR PIN  
OUTPUTS

## **SPECIFICATIONS❖**

INPUT POWER: 12 OR 24 VDC OPERATION.

NEGATIVE GROUND.

NOMINAL 10 AMP MINIMUM CURRENT

REQUIREMENT: 5 AMP MAXIMUM

NOTE: 12VDC SOLENOID VALVE COILS ARE  
MUST BE USED WITH 12V SYSTEMS, AND 24V  
COILS ON A 24 VOLT SYSTEM.

OUTPUT POWER: 5 AMP MAXIMUM PER VALVE SOLENOID

2.5 AMPS MAXIMUM IF SIGNAL DURATION  
EXCEEDS TWO MINUTES.

.1 AMP MAXIMUM OUTPUT DURING SHORT  
CIRCUIT CONDITION.