



**Model 6160 - 3 Channel, 12 Volt
Auxiliary Power Module (APM)**

Turn signal systems on agricultural vehicles are designed to handle a limited number of lamps, anywhere from three to about six per side of the vehicle. Current production tractors now have three lamps per side (with the boom lamp) on the vehicle itself leaving little if any lighting capacity for towed implements.

ASAE recommends turn/hazard lamps on towed implements and ASAE Std 279.11 now specifies two lamps per side for a towed implement. In some areas this is the law. Some users may also have multiple towed implements. This lighting demand will overload the vehicle system, either blowing the fuse, exceeding the rating of the wiring, or damaging the flasher source itself. The J W Speaker Auxiliary Power Module is designed to allow the customer to meet these requirements without risking damage or causing the failure of the wiring system of the vehicle.

THEORY OF OPERATION

The APM is a solid state device that receives the lamp signal from the tractor flasher and/or tail lamp circuit. The APM then provides a higher power output to operate the additional lamps. The APM power outputs are SMARTFET internally protected transistors that are not damaged by overloading. The APM is simply added to the existing vehicle wiring to receive the electrical signal to the vehicle lamps and then powers the new lamps through the additional connection to the battery system.

GENERAL OPERATION

The APM is enclosed in an aluminum housing which is also a heat sink for the solid state electronics. The circuit is fully potted for protection from the weather. The aluminum case must be mounted to a metal surface where it is not exposed to heat sources. The APM operates at any vehicle voltage from 10 to 16 VDC and is rated at 12.5 Amps per turn channel (side) at a 50% duty cycle and 5 Amps continuous for the tail lamps.

INSTALLATION

The APM is intended to be mounted on the tractor in line with the wires going to the 7 pin towed implement connector. It has three wires light gauge wires (20 AWG) for the input signals, three heavier gauge (16 AWG) outputs to the implement connector, one 12 AWG connection (RED) to the vehicle battery through a fuse, and a connection to the vehicle ground (BLK). The current for the auxiliary lamps comes from the connection to the battery, not from the vehicle lighting system. The only load added to the original vehicle lighting system is a few millamps to drive the SMARTFETs. The wires follow standard vehicle wiring colors with green for the right side, yellow for the left, and brown for the tail. The 20 AWG wires are the signal inputs and the 16 AWG wires are the outputs to the lamps. Fuse sizing depends on the new lamps installed. At the full capacity of the APM, the current draw would be 30 Amps.

WIRE DIAGRAM

