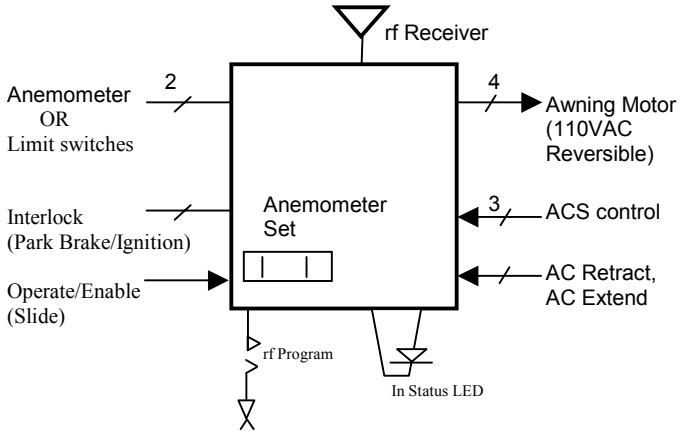
OPERATING DESCRIPTION

Recreational vehicles and motor homes are provided with awnings that employ tubular motors. These motors are typically powered by ac power from the utility supply (110V ac) or inverters running off automobile batteries. These motors are reversible and have 4 wires: counter-clockwise phase, clockwise phase, neutral and ground.

The ACMC1 electronics unit is a radio operated motor controller board. It allows the user to extend, retract and stop the awning using a programmable remote control. In addition to these basic features, the ACMC1 board has several value added features including a built-in current limiter that provides motor stall detection, environmental sensor inputs that can retract the awnings in case of high winds etc. Each ACMC1 board can control one awning motor rated up to 5A at 110V.

The ACMC1 allows a single awning to be controlled via the remote control. It is functionally equivalent to the ACS integrated receiver and can operate on both 110 and 240V ac lines (user selectable with a jumper). It consists of an rf receiver and inputs for anemometer control and for safety features like retract on ignition. The anemometer threshold can be set to one of four different wind-speed levels and the device retracts the awning automatically as soon as the wind-speed exceeds the preset threshold for ten seconds.



BLOCK COMPONENTS

Remote control input: The standalone receiver receives retract, extend and stop signals from the remote control and uses this information to control the awning motor.

Ignition input: The ACMC1 can be connected to the vehicles ignition system to detect when it is being started. When this occurs the ACMC1 automatically retracts the awning and prevents it from being extended until the vehicle ignition is turned off again

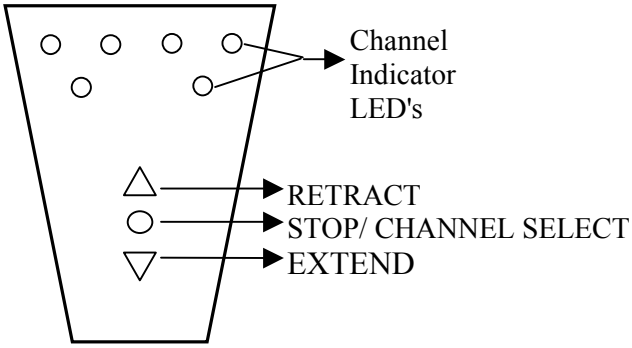
Wind-speed input: When the wind-speed exceeds a preset threshold for more than ten seconds the receiver retracts the awning motor completely. The retract signal is held high until the wind-speed falls below the threshold for a whole minute.

Limit Switches: Instead of an Anemometer input, an ACMC1 can be purchased as a slide room controller. The ACMC1 will then stop driving the motor when the limits have been reached

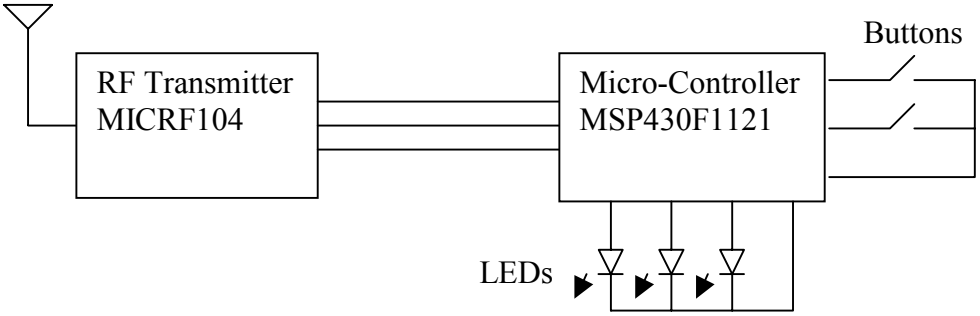
OPERATING DESCRIPTION

The remote control units are hand-held and powered by two AA batteries. The remote can transmit basic awning commands such as retract, extend and stop. There are two remote models; one with two separate channels and another with eight. Each channel may be configured for individual or group control of different awnings.

Remote Top view:



Block Diagram:

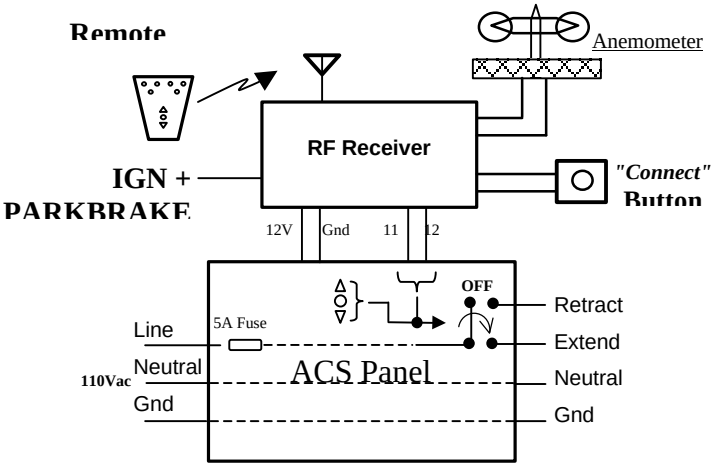


Remote hardware primarily includes a micro controller and an RF transmitter chip. The micro controller is from Texas Instruments (MSP430F1121) and the RF transmitter is from Micrel (MICRF104).

OPERATING DESCRIPTION

The ACS integrated receiver plugs into the internal terminal block on the ACS panel,. It adds remote functionality to the ACS panel. As well as protection interlocks Once installed the remote takes priority over the user buttons on the ACS panel.
A standard ACS remote can be used to control the ACS receiver. One remote can be used to control up to eight different functions.

The ACS receiver consists of an RF receiver, inputs for anemometer control, and connections for safety features like retract on ignition. The anemometer threshold can be set to one of four different wind-speed levels and the device retracts the awning automatically as soon as the wind-speed exceeds this for ten seconds.



BLOCK COMPONENTS

Remote control input: The standalone receiver receives retract, extend and stop signals from the remote control and uses this information to control the awning motor.

Ignition/park brake input: The ACS Receiver can be connected to the vehicles ignition system to detect when it is being started, and its park brake to detect when this has been released. When either occurs the ACS receiver automatically retracts the awning and prevents it from being extended until the vehicle ignition is off and the park brake is applied.

Wind-speed input: When the wind-speed exceeds a preset threshold for more than ten seconds the receiver retracts the awning motor completely. The retract signal is held high until the wind-speed falls below the threshold for a whole minute.