ARWS
(Adjustable RPM Window Switch)

The ARWS module is an electric switch (no mechanical contacts to wear out) that will activate its output above a selected RPM and will deactivate above a higher selected RPM, also called a window switch because its output is active during a window of RPMs. Perfect for applications like enabling/disabling your NOS (Nitrous Oxide System) injection, shift lights, Rev-limiter or turning on/off just about anything. The ARWS works on the standard coil signal that most tachometers would use, without effecting your tachometer readout, as well as 0-5V engine speed signals that some newer vehicles use. The module's output can ground 2.0A directly or the output can be used to activate a relay to operate any required loads. No expensive RPM plug in "pills" to buy, the ARWS comes preprogrammed with 8 different possible settings to choose from, and you specify what eight settings you need. When ordering we will need to know what type of engine this will be used with (4, 6, 8, 12, LS1, Vortec, ect.) and what 8 RPM selections you prefer, see page 3 for examples.

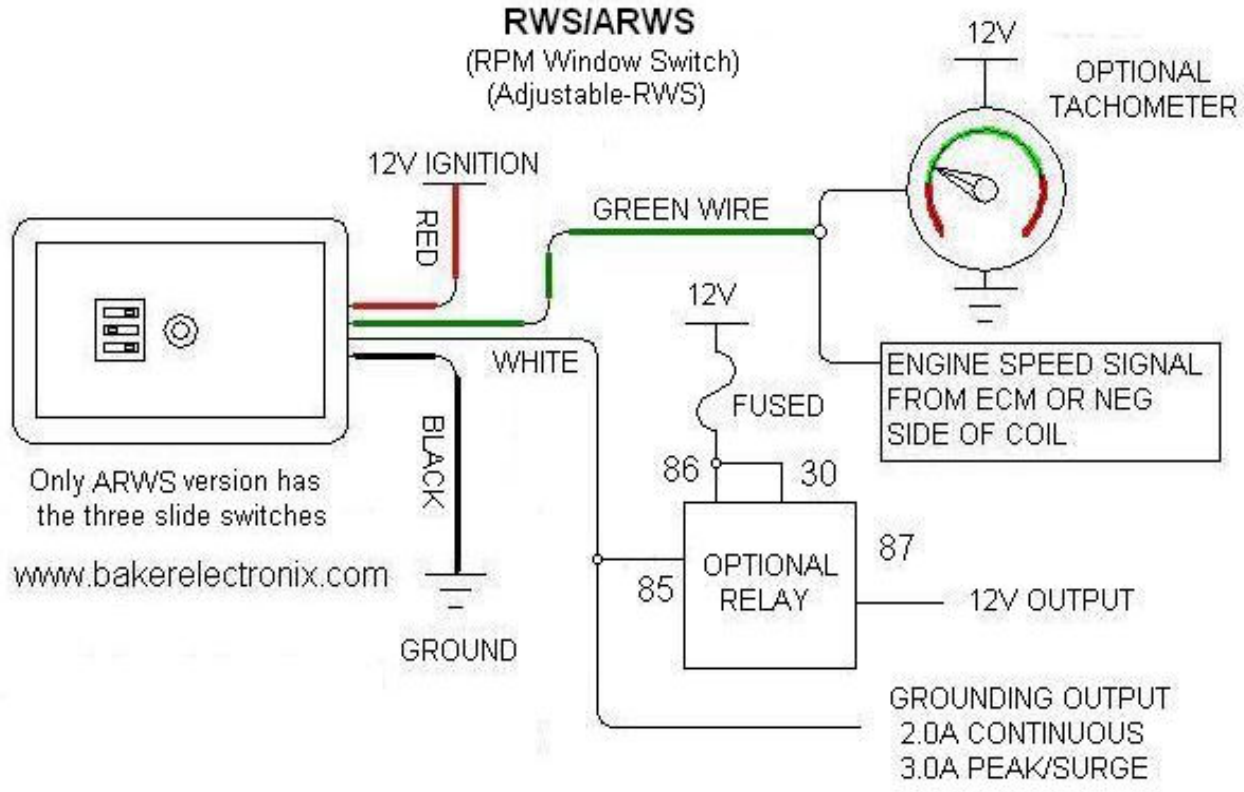
Features:

- Reverse voltage protection in the event of incorrect power connections
- Short circuit protection on all inputs and outputs to 12V or ground
- Output can sink 2.0A continuous to ground, up to a 3A surge
- Waterproof
- Low current (5 - 15mA)
- Indicator LED to confirm operation and indicate mode
- Works from 8V to 25V supply voltage
- Light weight (1.1oz)
- Small package (2.12in. by 1.38in. by 0.58in.)
- 12 month warranty from date of purchase against manufacturer defects

ARWS module wires:

- **Red**: 12V from ignition
- **White**: Output - connect to negative side of device to turn on
- **Green**: Engine speed signal input - connect to negative side of coil or signal from PCM/ECM
- **Black**: Ground

We recommend connecting the wires by using insulated crimps or soldering and using appropriate insulation, electrical tape or heat-shrink tubing. The 12V supply should be taken from a fused source. The ARWS module should be installed in a location that does not exceed 65°C or 150°F.



Normal operation:

When the ignition key is turned on the ARWS's LED indicator will flash 0*-7 time times indicating it has been reset and which of the eight setting it is set to, then the LED will briefly flash once every 2 seconds to indicate it has power and is waiting for engine speed pulses. Once the engine has started the LED will flash once per every two pulses detected. Please note it is hard to detect any flashing above 1,200 RPM, the LED will just appear dim above this point. If the engine speed signal stops the RWS module will reset and wait for the signal to start again. Once the RPM has reached selected set point the output will turn on or off (depending on which set point) and wont change back until the RPM is 10% lower then that set point (this is called hysteresis) or until the other set point RPM is reached. The hysteresis is done to eliminate output on/off pulsing, or chattering, when the RPM is at the set point, we can change the hysteresis values for each of the eight setting.

*For a switch setting of zero the LED will flash one long pulse on power up or reset.

Possible output examples:

1. On above a minimum RPM set point, (1000 RPM), and an adjustable upper turn off RPM from 3000 to 3700 in 100 RPM steps
2. Off above a maximum RPM set point, (5000 RPM), and an adjustable lower turn on RPM from 1000 to 4500 in 500 RPM steps
3. Off until a selectable RPM is reached, with 8 RPM settings to choose from. Typically used for shift light applications
4. On until a selectable RPM is reached, with 8 RPM settings to choose from. Typically used for a rev-limiter applications
5. On during a window of RPMs adjustable with eight different settings
6. Or pick and choose from the other examples

Example 1

Setting	Turn on RPM	Turn off RPM
0	1000	3000
1	1000	3100
2	1000	3200
3	1000	3300
4	1000	3400
5	1000	3500
6	1000	3600
7	1000	3700

Example 2

Setting	Turn on RPM	Turn off RPM
0	1000	5000
1	1500	5000
2	2000	5000
3	2500	5000
4	3000	5000
5	3500	5000
6	4000	5000
7	4500	5000

Example 3

Setting	Turn on RPM	Turn off RPM
0	4000	None
1	4100	None
2	4200	None
3	4300	None
4	4400	None
5	4500	None
6	4600	None
7	4700	None

Example 4

Setting	Turn on RPM	Turn off RPM
0	0	5000
1	0	5200
2	0	5400
3	0	5600
4	0	5800
5	0	6000
6	0	6200
7	0	6400

Example 5

Setting	Turn on RPM	Turn off RPM
0	500	1000
1	1000	2000
2	2000	3000
3	3000	4000
4	4000	5000
5	6000	7000
6	7000	8000
7	9000	10000

Example 6

Setting	Turn on RPM	Turn off RPM
0	1000	None
1	3000	4000
2	4000	None
3	500	3500
4	------	250
5	250	10000
6	1000	None
7	0	7000

Setting 4 is never on.
Setting 5 is always on.

The RPM settings can be chosen anywhere from 250 RPMs to 10,000 RPMs.
This Table is provided for selecting your eight settings.

Setting	Switch Settings	Hysteresis value for lower RPM	Turn on RPM (Lower RPM)		Hysteresis value for upper RPM	Turn off RPM (Upper RPM)
0	000 (off,off,off)	*			*	
1	001 (off,off,on)	*			*	
2	010	*			*	
3	011	*			*	
4	100	*			*	
5	101	*			*	
6	110	*			*	
7	111	*			*	

***** Unless other wise selected, the Hysteresis values will be 10% lower then the set points. If desired, latching is also available on any setting if you want the output to stay on or off, after a selected RPM has been reached, until the ignition has been turn off. To indicate a setting as latching, just write Latch in the Hysteresis column.

Troubleshooting:

Check the LED on ARWS module:

- **If LED is off and never flashes**: check both power and ground to ARWS module
- **If LED flashes about once every 2 seconds**: Engine speed signal is missing, check connection to PCM or negative side of coil
- **If LED flashes 1 to 12 times, pauses, then starts flashing again**: this indicates the ARWS module has detected an error and will continue to flash this error code until the ignition key is cycled. Count the number of pulses between pauses to find the error number 1-12. Please Email us at bakerelectronix@verizon.net with this information.

For warranty service, questions, or comments regarding this or any of our products, please contact Baker Electronix at bakerelectronix@verizon.net

Please do not call us with technical questions as we are better equipped to answer your questions by email and this also allows us to send you copies of documentation when applicable.