

# PDM32 Automatic Wipers

Automatic wipers work by sensing the presence of raindrops through the glass. This is done because rainwater and glass have a very similar refractive index. A beam of infra-red light is projected onto the window at a 45-degree angle and will bounce off the front edge of the glass and hit the detector which is placed in the position to receive the reflected beam. When rain is present on the glass some of the beam passes through the glass and is refracted by the water drop to somewhere other than the detector and the detector sends a signal to run the wiper. If mud, ice or snow is on the windscreen their refractive index is different from glass and the infra-red beam will not be changed by them, so you must turn on the wipers yourself if you want them.

The light from the sun has little effect because the detector is at the correct place for the refracted light of known wavelength and there is another sensor to detect the direct incoming light from the sun in another location where the refracted beam will not hit.

How can this be implemented on a PDM32?

If the infrared transmitter is set behind the rear view mirror in the swept are of the wiper .The output of the detector can be a voltage which can be sampled by an analogue input and when it deviates from the expected value a single sweep can be done with the wipers to clear the rain. The heavier the rain the more often the single sweep will be called for.

If you have the wipers working and you select reverse gear it is possible to have the rear wiper do a sweep to help clear the water from the rear window.