

How it works: Drainback Schematic

A fail-safe method of ensuring that collectors and collector loop piping never freeze is to remove all water from the collectors and piping when the system is not collecting heat. This is a major feature of the drainback system. Freeze protection is provided when the system is in the drain mode. Water in the collectors and exposed piping drains into the insulated drain-back reservoir tank each time the pump shuts off. A slight tilt of the collectors is required in order to allow complete drainage. A sight glass attached to the drain-back reservoir tank shows when the reservoir tank is full and the collector has been drained.

In this particular system, distilled water is recommended to be used as the collector loop fluid-transfer solution. Using distilled water increases the heat transfer characteristics and prevents possible mineral buildup of the transfer solution.

During the day, the pump is activated by a differential controller. Water is pumped from the reservoir to the collectors, allowing heat to be collected. It is then circulated through the heat exchanger at the bottom of the solar tank. The heat exchanger transfers heat from the collector loop fluid to the potable water in the solar tank.

