

# Installation Instructions

These instructions cover the installation of the Aircosaver in most residential and light commercial DX (direct expansion) AC systems, e.g. wall-mounted and window units, single split systems and PTAC units. For use with larger systems, industrial units or on different applications such as reverse cycle air conditioning (incl. heating) or cold storage cooling, please contact us for different versions. The standard Aircosaver is not suitable for the following systems: chilled water, evaporative cooling, inverter controlled, multi-split, digital and satellite systems. If in doubt please contact us: support@aircosaver.com

## Warnings

Installing and servicing air conditioning equipment can be hazardous due to system pressures and electrical components. Although Aircosaver installation is quick and simple, it should only be conducted by trained electricians or HVAC contractors to ensure proper system setup and maximum savings. Make sure to follow all general safety codes and observe precautions on tags or labels attached to the AC unit.

## Required tools and accessories

Provided material:

- 1 Aircosaver
- 1 Sensor plus mounting socket
- 2 Self-drilling mounting screws

Additional required material:

- Standard screwdrivers (power screwdriver if available)
- 4 standard insulating screw joints or wire nuts
- Standard insulated cable (length depending on local circumstances, recommended diameter 0,75mm<sup>2</sup>)
- Wire-cutting pliers, wire stripper

## Preparations

Disconnect power to air conditioning unit and make sure nobody can switch on power while you are working on the unit (e.g. tag the disconnect switch with a suitable warning label). Remove covers of the air conditioner.

## Mount the Aircosaver

Find a suitable location for the Aircosaver (inside or outside your unit) which allows you to:

- get access to the internal 120V power supply
- position the sensor in the supply air stream (sensor wiring can be extended up to 9m in length)
- connect the Aircosaver in series between thermostat and compressor. Find the wire between thermostat and compressor that switches the compressor on and off according to the thermostat temperature. Check inside the unit or in your documentation for a wiring diagram.

Do not mount close to components which radiate high temperature.

If a suitable position has been found, use the self-drilling screws to mount the Aircosaver to the unit. Use power screw driver if available. If insufficient space is available inside the unit, you can also mount the Aircosaver to a wall or ceiling or on the outside of the AC unit. For external mounting please use version with tension relief.

Please read the entire instruction manual before starting the installation.



1 Provided material



2 Additional required material



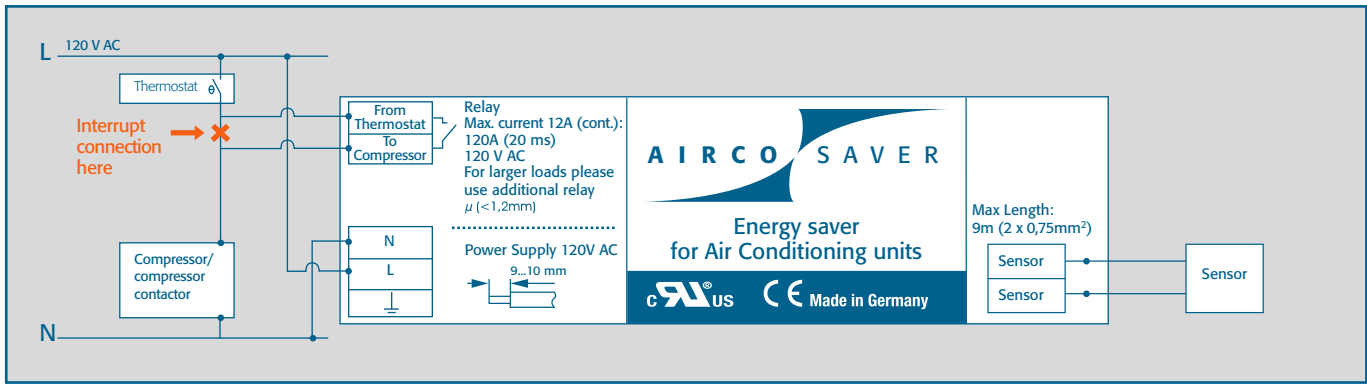
3 Disconnect power & remove covers



4 Find a suitable location



5 Check for a wiring diagram



## Electrical connections

- Interrupt the original connection between thermostat and compressor. Connect Aircosaver IN SERIES between thermostat and compressor (not parallel). Switched load should not exceed 12A continuously and 120A temporarily (20 ms). Otherwise use a standard additional switching relay.
- Connect Aircosaver to power supply. The power supply to the Aircosaver should be connected in parallel to the main power switch of the AC unit (i.e. not always-on) as the Aircosaver can then provide a built-in protection against harmful short-cycling of the compressor (caused e.g. by quick manual on/off switching or a short-term power outage). With the polycarbonate housing connecting Ground is not necessary.
- Connect the sensor.

## Position sensor in supply air stream

Position the sensor close to the evaporator coil behind the grill of a cassette unit, or if in a ducted system, max. 450 mm from the evaporator coil. The length of the sensor wiring can be extended up to 9m, using standard two-core cable (0,75 mm<sup>2</sup> diameter recommended). Depending on your unit, there are various possible ways of mounting the sensor. You could also drill a small hole (diameter 10 mm) for the rubber mounting socket and snap-in the sensor.

## Reconnect power and start saving

Check all electrical connections for proper position. Replace covers. Restore power to unit.

**Installation is complete. Your AC system is ready to save energy.**

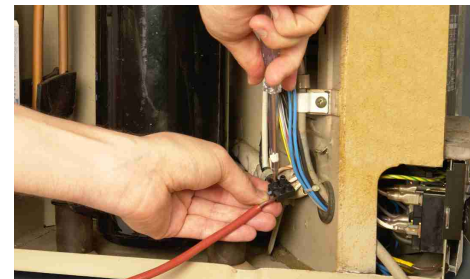
## Status and error codes

Check if the green Aircosaver LED is flashing. Flashrate indicates status/error code (1 flash = status 1, 2 flashes = status 2 etc.) Please note that the Aircosaver control cycle always begins with an OFF-period of the compressor to allow calibration and to prevent short-cycling.

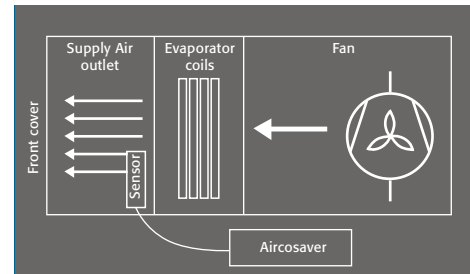
Status Code	Description
1	Power cut protection (compressor off)
2	Standby and sensing for cooling (relay closed)
3	Efficiency sensing (compressor on)
4	Dynamic learning (compressor on)
5	Anti short cycle time (compressor off)
6	Temperature sensing (compressor off)
7	Sensor Error: shorted / open / out of range (relay closed)



6 Cut connection between thermostat and compressor



7 Connect Aircosaver In SERIES between thermostat and compressor and connect power supply to Aircosaver



8 Position sensor in supply air stream (schematic)



9 Position sensor in supply air stream (example)



10 Check correct wiring & replace covers