# DEW POINT MONITORING
## UNDERSTANDING, PLANNING and CONFIGURING – and thus avoiding condensation

The dew point temperature is that temperature at which condensation develops on a surface.

For example: At an air temperature of 24.0°C and at 60% relative humidity, the dew point is at a temperature of 15.8°C. If there is a surface in this room that is 15.8°C or colder, water droplets will develop on it.

The objective of dew point monitoring is to avoid this. In buildings, condensation, sometimes also referred to as „dew water", occurs particularly on cooled pipes and surfaces of air conditioning systems. The moisture of the warm room air can settle here if surface and dew point temperatures approach similar values.
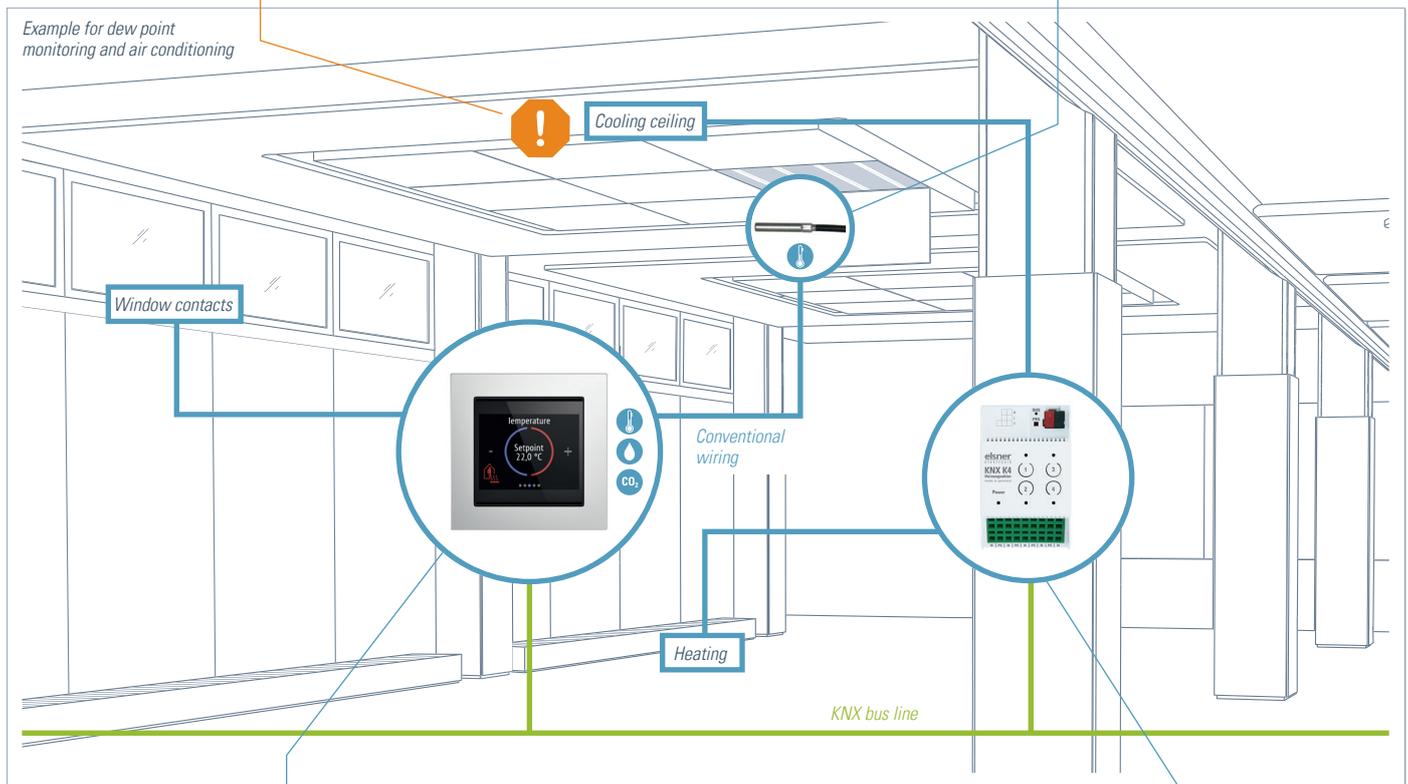
Thanks to the monitoring process, the building automation system can implement timely measures in order to avoid droplet formation. For example, the temperature of the coolant may be raised (reduction of air conditioning), the room temperature may be raised, or the air humidity lowered (ventilation).

### DANGER OF CONDENSATION
on the cold pipes of air conditioning systems!
Consequence: Water collects on building elements and damages them, or droplets fall from the ceiling.

### TEMPERATURE SENSOR T-NTC
· Measures the **surface temperature** of the cooling element
· The sensor is connected to an input port of the room controller Cala KNX

*Example for dew point monitoring and air conditioning*



Cooling ceiling

Window contacts

Conventional wiring

Heating

KNX bus line

### ROOM CONTROLLER CALA KNX TH or CALA KNX AQS/TH
· Measures the **room temperature** and monitors the **dew point**
· Automatically controls heating and cooling (on one or two levels)

Practical functions for air conditioning (selected examples):
· Actuating variable output optimised for standard or 4/6-way valve
· Four inputs for temperature sensor, but also push buttons or window contacts
· Window contacts may, for example, activate the frost/heat protection mode

Comfort functions:
· Show room and nominal temperature as well as current air conditioning mode
· Manual adjustments of nominal temperature and mode, comfort extension
· Touch switch for window, shades, light

### AIR CONDITIONING ACTUATOR KNX K4
· Controls the valves of the heating/cooling system

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## SETTING UP − Example of Cala KNX room controller

## SETTING THE PARAMETERS IN THE ETS

### Cooling medium temperature monitoring of the Cala KNX

Dew point monitoring can be set up with **Cala KNX TH** or **Cala AQS/TH.** Both measure the room temperature and air humidity and may control heating and cooling systems. **Cooling medium temperature monitoring** is used for the dew point function.

In the ETS application of the Cala KNX, *Monitoring of the cooling medium temperature* is activated in the menu *Dew point measurement*. Then, the menu within the *Cooling medium temperature monitoring* allows you to set the offset, switch delays and blocks. The offset serves to determine the temperature in degrees for triggering a dew point warning via the switch output before reaching the critical dew point temperature. The offset allows giving the system some reaction time for counter-measures. The following applies: threshold value for switching output cooling medium temperature = dew point + offset.

### Sensor T-NTC at the input/interface of Cala KNX

If the current cooling medium temperature is to be provided by the **sensor T-NTC**, the sensor is connected to one input (interface) of Cala KNX and the **interface** is set up in the ETS application of Cala KNX.

The input/interface is activated in the ETS application at the menu *Push button interfaces*. Then, the function *Temperature sensor NTC* is selected in the *Interface X* menu.

### KNX K4 actuator

The air conditioning actuator KNX K4 is used to control the valves in the heating and cooling system. In order to take over temperature control from Cala KNX, select the *Control type: via temperature controller*.

## LINKING THE COMMUNICATION OBJECTS

An overview of the most important object links for dew point monitoring:

*Dew point monitoring*

Cala | 222: Cooling medium temp.: Threshold value → Info to air conditioning system (threshold value = minimum nominal value of coolant temperature)

Surface temperature
Cala | 588: Push button 1 NTC measured value → Cala | 223: Cooling medium temp.: Actual value

Cala | 228: Cooling medium temp.: Switching output → Measures: e.g. interrupt cooling
Cala | 104: Temp.Control: Block
[alternatively KNX K4 | 3: Channel 1: Lock]