Ecodesign networked standby

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1. Natural ventilation system

The window actuator is mounted in a window and controlled by a control panel, enabling automatic opening and closing of the window. Together with an outdoor rain sensor, the window actuator and control panel, constitutes the most basic Automated Natural Ventilation system (hereafter referred to NV system).

A WindowMaster NV system generally consists of the following components:

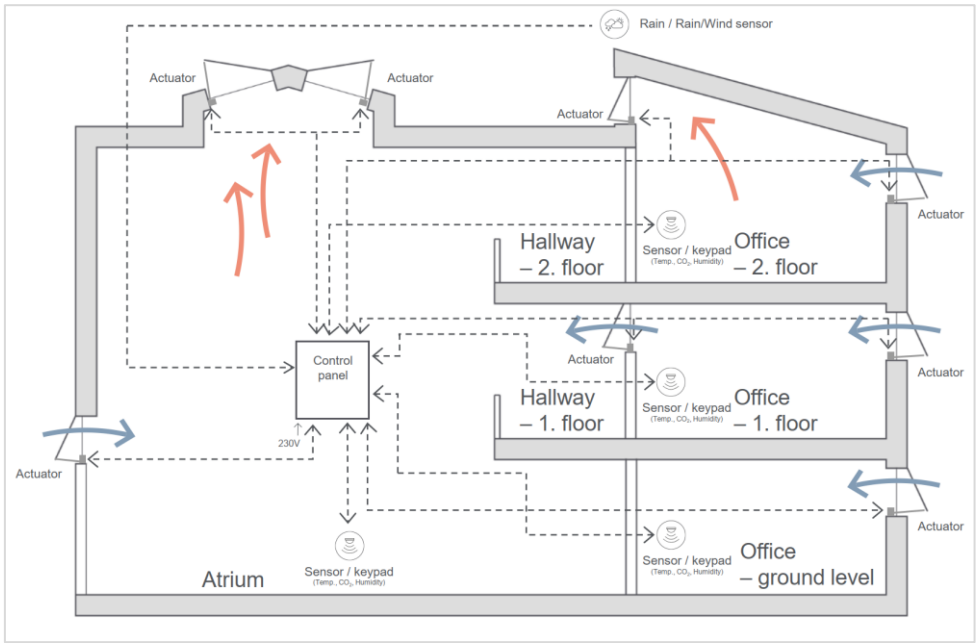
- **Window actuators** mounted in the windows for opening / closing of the window based on signals from the control panel.
  A window actuator is a necessity in a NV system.

- A **Control panel**, installed somewhere in the building, controls the opening / closing of the windows. The control panel receives signals from e.g. indoor sensors, outdoor sensors and operation keypads.
  A control panel is a necessity in a NV system. It supplies the power to all window actuators, and it contains all the software and logic which run the automatic opening and closing of windows.

- **Rain sensor** or **wind/rain sensor** mounted on the roof top. The sensor sends signals to the control panel, so windows are closed in case of rain and / or high winds.
  A rain sensor is the minimum outdoor sensor required in a NV system to keep the integrity of the building envelope.

- **Indoor room sensors** e.g., temperature, CO2 and humidity. The sensors continuously send measurements to the control panel, so windows are opened or closed when measurements reach predefined set points.
  Indoor room sensors are optional in a NV system.

- **Operation keypad** for manual operation (opening / closing) of the windows. Keypads are mounted inside the building near the window it operate. Pressing the keypads sends a signal to the control panel which opens / closes the window, depending on the command.
  Operation keypads are optional in a NV system.



Figur 1 Example of NV System

1.1. Minimum networked standby consumption

The minimum network standby consumption of a NV system is determined by the control panel, see table below for values.

- When not running (opening / closing) the **window actuators** power down and do not consume any power in networked standby.

- Due to the connected rain sensor, the **control panel** will never power down, the panel will maintain a monitoring mode. WindowMaster window actuators can be controlled by control panels manufactured by other manufactures. Please refer to their values.

- A **rain sensor** or **wind/rain sensor** is necessary to protect the building from rain, its consumption is therefore not a part of the networked standby consumption.

- An **indoor room sensor** is optional in a NV system however the energy consumption is part of the functionality and therefore not a part of the networked standby consumption.

- An **operation keypad** is optional and does not consume any power in networked standby.

Control panel	Networked standby consumption min. configuration [W]	Energy consumption rain sensor min./max.[1] [W]	Networked standby consumption max. configuration[2] [W]
WCC 103	0.5 - 0.7	WLA 330: Min.: 0.037 * 24 / 0.98 = 0.91W Max.:0.043 * 24 / 0.98 = 1.05W	AUX max.: 0.5A x 24V / 0.98 = 12.24
WCC 310 S 0410	0.9	0.91 / 1.05	AUX max.: 0.23 * 24 / 0.98 = 5.63 PSU no idle: +6.2
WCC 310 S 0410 KNX	0.9	0.91 / 1.05	AUX: +5.63 PSU no Idle: +6.2
WCC 310 P 0202	1.2	WLA 340: Min.: 0.044 * 24 / 0.98 = 1.08W Max.: 0.060 * 24/ 0.98 = 1.47W	AUX: +5.63 PSU no idle: +6.8 LAN port on: +0.9
WCC 310 P 0612	1.7	1.08 / 1.47	AUX: +5.63 PSU no idle: +6.8 LAN port on: +0.9
WCC 310 P 1012	1.7 - 1.9	1.08 / 1.47	AUX: +5.63 PSU no idle: +6.8 LAN port on: +0.9
WCC 320 S 0810	1.1	1.08 / 1.47	AUX: +5.63 PSU no Idle: +7.3
WCC 320 S 0810 KNX	1.1	1.08 / 1.47	AUX: +5.63 PSU no idle: +7.3
WCC 320 P 0202	1.3	1.08 / 1.47	AUX: +5.63 PSU no idle: +7.9 LAN port on: +0.6
WCC 320 P 0612	1.9 - 2.2	1.08 / 1.47	AUX: +5.63 PSU no idle: +7.9 LAN port on: +0.6
WCC 320 P 1012	1.9 - 2.2	1.08 / 1.47	AUX: +5.63 PSU no idle: +7.9 LAN port on: +0.6

[1] Min./max. consumption for wind/rain refers to “rain” active sensor / “no rain” inactive sensor.
[2] If X10 AUX supply is loaded with more than 200-250 mA, the main power supply may not go into idle mode.

A system reaches networked standby shortly after an operation has stopped, or 10 minutes after latest interaction with the display.

2. Natural ventilation system with wireless communication

The window actuator is mounted in a window and controlled by a control panel, enabling automatic opening and closing of the window. Together with an outdoor rain sensor, the window actuator and control panel, constitutes the most basic Automated Natural Ventilation system (hereafter referred to NV system). The manual operation of the windows is done via wireless communication between the control unit and a remote control and / or a mobile phone app.

A WindowMaster NV system with wireless communication generally consists of the following components:

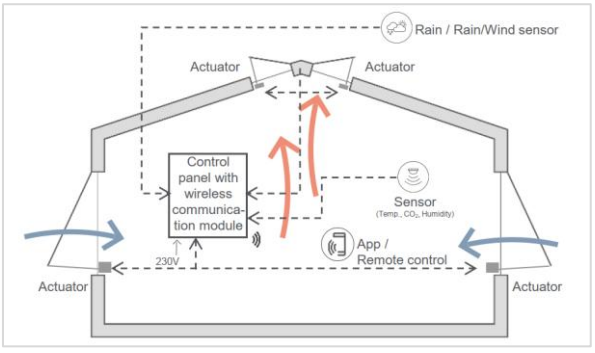
- **Window actuators** mounted in the windows for opening / closing of the window based on signals from the control panel.
  A window actuator is a necessity in a NV system.

- A **Control panel**, with a wireless communication module is installed somewhere in the building, controls the opening / closing of the windows. The control panel receives signals from e.g. indoor sensors, outdoor sensors, a remote control and a mobile phone app.
  A control panel is a necessity in a NV system. It supplies the power to all window actuators, and it contains all the software and logic which run the automatic opening and closing of windows.

- **Rain sensor** or **wind/rain sensor** mounted on the roof top. The sensor sends signals to the control panel, so windows are closed in case of rain and / or high winds.
  A rain sensor is the minimum outdoor sensor required in a NV system to keep the integrity of the building envelope.

- **Indoor room sensors** e.g., temperature, CO2 and humidity. The sensors continuously send measurements to the control panel, so windows are opened or closed when measurements reach predefined set points.
  Indoor room sensors are optional in a NV system.

- A **remote control or mobile phone app** enables the user to manually operate (open / close) the window.
  A remote control or app is a necessity in a NV system with wireless communication as it enables the user to manual operate or override of the automatic control.



Figur 2 Example of NV System with wireless communication

2.1. Minimum networked standby consumption

The minimum network standby consumption of a NV system with wireless communication is determined by the control panel, see table below for values.

- When not running (opening / closing) the **window actuators** power down and do not consume any power in networked standby.

- Due to the connected rain sensor and the wireless communication module, the **control panel** will never power down, the panel will maintain a monitoring mode. WindowMaster window actuators can be controlled by control panels manufactured by other manufactures. Please refer to their values.

- A **rain sensor** or a **wind/rain sensor** is necessary to protect the building from rain, its consumption is therefore not a part of the standby or networked standby consumption.

- An **indoor room sensor** is optional in a NV system however the energy consumption is part of the functionality and therefore not a part of the networked standby consumption.

- A **remote control** or **mobile phone app** is necessary to manually operate the windows, and the energy consumption is part of the functionality and therefore not a part of the networked standby consumption.

Control panel	Networked standby consumption min. configuration [W]	Energy consumption rain sensor min/max[1] [W]	Networked standby consumption max. configuration[2] [W]
WCC 103 A	0.5 - 0.7	WLA 330: Min.: 0.037 * 24 / 0.98 = 0.91W Max.:0.043 * 24 / 0.98 = 1.05W	AUX max.: 0.5A x 24V / 0.98 = 12.24
WCC 106 A	1.0 - 1.3	WLA 330: Min.: 0.037 * 24 / 0.98 =0.91W Max.:0.043 * 24 / 0.98 =1.05W	AUX max.: 0.5A x 24V / 0.98 = 12.24

[1] min/max consumption for wind/rain refers to “rain” active sensor / “no rain” inactive sensor. Weather stations can prevent the controller to go into idle mode

[2] If X10 AUX supply is fully loaded with 500mA.

A system reaches networked standby shortly after an operation has stopped.

3. Natural smoke and heat exhaust ventilation system

The window actuator is mounted in a window and controlled by a smoke control panel, enabling automatic opening and closing of the window. Together with a smoke and / or heat detector, break glass units, the window actuator and smoke control panel, constitutes the most basic Natural Smoke and Heat Exhaust Ventilation System (hereafter referred to NSHEV system). Activation of the NSHEV system might also come from a connected fire alarm system.

A WindowMaster NSHEV system generally consists of the following components:

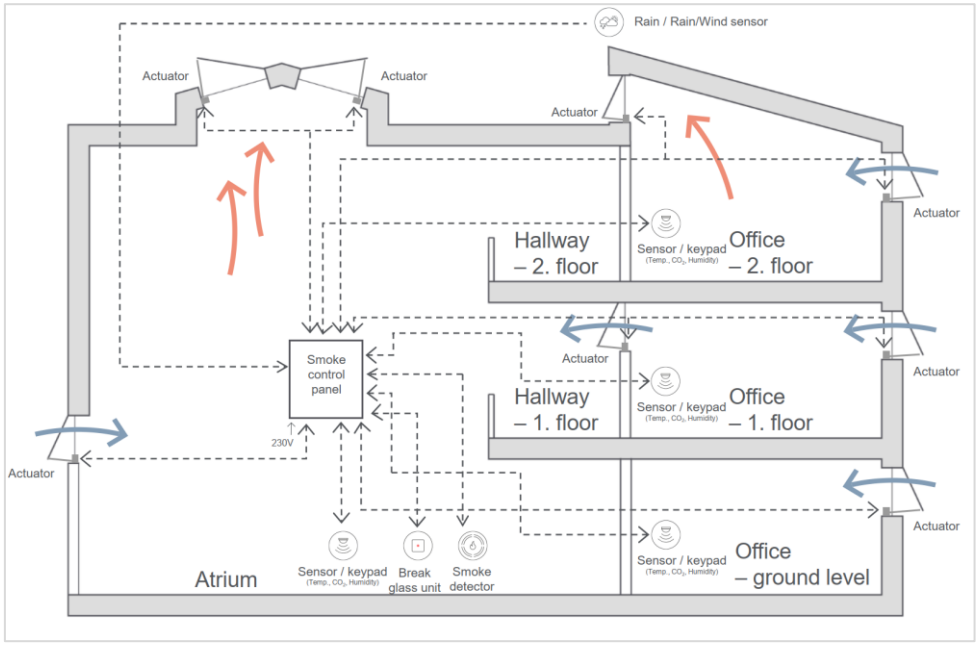
- **Window actuators** mounted in the windows for opening / closing of the window based on signals from the smoke control panel.
  A window actuator is a necessity in a NSHEV system.

- A **Smoke control panel**, installed somewhere in the building, controls the opening / closing of the windows. The smoke control panel receives signals from e.g. smoke detectors, heat detectors and break glass units.
  A smoke control panel is a necessity in a NSHEV system. It supplies the power to all window actuators, break glass units, smoke- and heat detectors. Furthermore, the smoke control panel contains all the software and logic which run the automatic opening and closing of windows. The smoke control panel also have back-up batteries as a secondary power source.

- **Smoke detectors** installed throughout the building, often minimum one sensor per room. When a smoke detector detects smoke, it sends a signal to the smoke control panel, so windows are opened or closed depending on configuration / specifications.
  A smoke detector can be a necessity in a NSHEV system.

- **Heat detectors** installed throughout the building, often in rooms / locations where smoke detectors cannot be used. When a heat detector detects a high temperature increase, it sends a signal to the smoke control panel, so windows can be opened or closed depending on configuration / specifications.
  A heat detector can be a necessity in a NSHEV system.

- **Break glass units** installed throughout the building. When activated, the break glass unit sends a signal to the smoke control panel, so windows can be opened or closed depending on configuration / specifications.
  A break glass unit can be a necessity in a NSHEV system.



Figur 3 Example with a smoke and heat exhaust system

3.1. Minimum networked standby consumption

The minimum network standby consumption of a NSHEV system is determined by the smoke control panel, see table below for values.

- When not running (opening / closing) the **window actuators** power down and do not consume any power in networked standby.

- When not running the window actuators the **smoke control panel** will maintain a monitoring mode due to the connected break glass unit, smoke and heat sensors. The back-up batteries are also recharged regularly.
  WindowMaster window actuators can be controlled by smoke control panels manufactured by other manufactures. Please refer to their values.

- A **smoke detector** is necessary to detect fire, its consumption is therefore not a part of the networked standby consumption.

- A **heat detector** is necessary to detect fire, its consumption is therefore not a part of the networked standby consumption.

- A **break glass unit** is necessary as it enables people to activate the system in case of fire, its consumption is therefore not a part of the networked standby consumption.

Smoke control panel	Networked standby min. application[1] [W]	Energy consumptions break glass units: 1 x WSK 501 incl. surveillance p7+8 WSA 501 / 1 x WSK 503 [W]	Energy consumption smoke detectors: 10 x WSA 311 61 incl. surveillance module WSA 501 [W]	Networked standby max application without rain sensor [W]
WSC 104	1.62	0.0442 / 0.0094	0.0743	3.38 / 4.38
WSC 106	2.61	0.0442 / 0.0094		3.61
WSC 310 P 0202	3.02			5.35
WSC 320 P 0202	5.02			8.1
WSC 320 P 1012	5.47			8.3
WSC 520 xxxx	5.88[2]			8.53[3]
WSC 540 xxxx	11.76[2] (2 x 5.88)			17.06[3]
WSC 560 xxxx	17.64[2] (3 x 5.88)			25.59[3]

[1] S1X1: 1 x WMX MotorLink®, X5: 1 x break glass units: WSK 501 + WSA 501, X7: 1 x Surveillance WSA 501, X10: 1 x Surveillance WSA 501.

[2] WSC 5x0 U00, S3X1-4: 24VDC + WSA 510, S2X1:1 x break glass unit: WSK 501 + WSA 501.

[3] WSC 5x0 IUU, S3-4X1-4: 24VDC + WSA 510, S2X1:10 x break glass unit: WSK 501 + 10 x WSA 501.

A system reaches networked standby shortly after an operation has stopped or 10 minutes after latest interaction with the display.