

# Natural Ventilation and Smoke Ventilation

The system comprises a number of automatically opening natural smoke ventilators. The purpose of these ventilators is to provide smoke ventilation and day to day thermal comfort ventilation under the control of the local occupant and automated cooling for the building.

Zone controllers are to be SE CONTROLS OS2 microprocessor based system and provide networking capability to implement complicate controls from Automatic Fire Detection System (AFA).

The OS2 zone controller operates the smoke vent actuators dependent on the type of inputs, fully open or close in case of fire mode and in proportional mode for day to day comfort control.

To maintain system performance & compatibility, all equipment will be provided, installed, commissioned and maintained by Unique Window Services 07 32655771.

## Smoke Vent Actuators

Each Smoke Vent will be operated by either one, two or multiple actuators. (if more than one actuator is used on a vent, they must be operated under synchronized mode). The type of actuator will be determined by the performance requirements of the ventilator and will take into account weather performance, size and weight, number of operations and other requirements. The actuators are to be 24vDC and operate on 2 wires system with a power open, power close basis with proportional opening achieved by an compatible zone controller supply to the actuator. Switching of the actuators will be by reversing the polarity of the supply to the actuators.

Each actuator will be protected by end switches or electronic limits switches.

Operating temperature should be -5 to 75 degree Celsius, humidity 10 - 95% non condensing.

## Chain Actuator

1. Chain actuators shall be SE CONTROLS SECO N 24 40 , microprocessor based, stroke, speed and force of the actuator can be adjusted by programming, and reprogramming.
2. Chain actuator shall be used for both natural and smoke ventilation.
3. The actuator shall in-corporate anti-finger trapping protection function. During closing, the actuator will stop and reverse its direction when the actuator is obstructed by foreign objects.
4. The chain actuator shall have "gasket relief" function by reversing . the motor upon fully closed position to prolong the useful life of

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SPECIFICATION

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weather seal. The reversing distance can be programmed according to the weather seal used for optimal result.

5. Chain actuator shall be enclosed in a metal housing either zinc die cast or aluminium extrusion for noise reduction and robustness in strength. (plastic housing is not allowed). Chain shall be corrosion resistant material including stainless steel or nickel plated material. The chain actuator shall have ingress protection of IP 32.

6. Life expectancy for use in dual natural ventilation and smoke ventilation should comprise with minimum 15,000 cycles.

7. The actuator shall be tested to meet elevated temperature test at 300 degree C as per EN 12101-2 Annex G.

8. In cases where there are more than one actuator used on a smoke vent, an electronic synchronizing devices with a microprocessor control should be used to support wide and heavy windows. (no current sensing tandem switch is allowed to use for protection).

9. The force of the actuator shall be minimum 400N both for retract and push force.

10. The clamping force of the actuator should be more than 4,000N.

### **Power Input/Output Requirements**

Each Window Controller requires a 230vAC fused input. The Window Controller contains a 230v - 24vDC transformer rectifier unit with an output of 8 to 10 amps at 24vDC. The Window Controller also contains battery backup, of sufficient capacity to provide safety operations in a mains power fail situation.

### **Output Switching Operation**

Reverse polarity to open and close window actuator via 2 wire output.

Battery Backup (applicable to smoke ventilation only).

In-built facility to contain battery backup of sufficient capacity to provide 8 hrs emergency operation of the window actuator(s) in the case of mains power failure. The battery backup will be fully monitored such that at a predetermined level, a fault indication can be signaled remotely via the window controller network.

When mains power is disconnected, the day to day switch is disable to conserve battery power.

### **Output Signals**

The local window controller shall be capable of giving external signals to indicate activated, fault and status signals. These outputs shall be via LonWorks or Volt free contacts. LonWorks or Volt free contacts.

## Input Signals

The local window controller shall be capable of receiving a local input from a rocker switch, with the purpose of opening and closing the local window actuator. The local window controller shall be capable of fully opening and fully closing the window actuator via a single pulsed operation of the rocker switch OR can be re-programmed to allow proportional opening and closing of the window actuator. Proportional control will enable the window actuator to operate when the rocker switch is depressed and stop when the rocker switch is released.

The local window controller shall be capable of receiving input(s) from other local window controllers, other local devices and/or the Building Management System. These inputs may take the form of digital inputs, volt free inputs, analogue inputs (0-10V dc) and Lonworks.

Each Window Controller can also receive a 0-10vDC input signal, and can be programmed for specific functional requirements. E.g. or other combination of strategy

|     |   |                  |                                |
|-----|---|------------------|--------------------------------|
| 0v  | = | Window Closed    | Local Override Switch Disabled |
| 2v  | = | Window Closed    | Local Override Switch Enabled  |
| 4v  | = | Window Open 25%  | Local Override Switch Disabled |
| 6v  | = | Window Open 50%  | Local Override Switch Disabled |
| 8v  | = | Window Open 75%  | Local Override Switch Disabled |
| 10v | = | Window Open 100% | Local Override Switch Disabled |

## Reprogramming

The local window controller shall be capable of being reprogrammed on-line via in-built flash memory.

## Size

290mm (l) x 260mm(w) x 118mm(h),

## Operating Temperature

-20 to 75 degrees Celsius

## Humidity

10 to 90% non condensing

To maintain system performance and compatibility, all equipment will be provided, installed, commissioned and maintained by Unique Window Services, phone (07) 3265-5771.

An ongoing service agreement outside the normal warranty period will be by way of a service agreement with Unique Window Services.

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