



The electronic frost protection unit FV is mainly intended for use in air handling systems. If the temperature falls below the setpoint, the relays will fall and an alarm LED lights up. The unit should be connected to a NTC sensor placed on the heating coil or return water pipe. The sensor must have 0...30°C temperature range, suitable sensors are SCC-NTC15-01 and NT0515-NTC15. When there is frost risk, FV has a 0...10 Vdc control output that can be used to control the valve.

- Two alarm relays, 24 V and 230 V AC
- Setpoint 0...15°C
- Manual or automatic reset
- Active output 0...10 V for control signal override
- Supply 24 V AC
- DIN-rail mounting

Function

FV is a frost protection unit mainly for use in air handling systems. The unit is connected to a NTC sensor that is placed in the heating coil or on the pipe from the coil. Sensor must be of temperature range 0...30 degrees, i.e. type SCC-NTC15-01 or NT0515-NTC15. To make a correct mounting and sensor choice, always follow recommendations from the water-heater supplier.

Alarm setpoint

Setpoint range is 0...15°C and can be set on the front of the unit using a screwdriver. Normal setpoint for frost protection in air handling systems is between 5...8°C.

Active output Y1

To prevent frost alarm, FV has a function that over-modulates the signal to the control valve. If the temperature at the frost protection sensor begins to reach the alarm level the FV will start to force the control valve to open. If the temperature falls below the start-point * for active output, the output signal will successively increase. If the temperature continues to fall, the output signal will continue to increase. When the temperature has fallen to the alarm level, the output signal is +10 V DC.

* The start-point level is the set alarm level plus 5 K.

Connection of an output from the controller

The control signal from the controller connects to the input at the FV. FV has an analogue output which connects to the control signal input on the actuator.

Frost alarm

If the temperature at the temperature sensor falls below alarm setpoint both alarm relays trip and the alarm LED comes on.

Reset

When the temperature rises to a level 5K above the alarm setpoint, the alarm can be reset by pushing the reset button.

Automatic reset

FV can easily be set to have automatic reset if desired, instead of manual reset. See overleaf.

Automatic resetting adjustment

FV has manual resettings as standard. If automatic reset is required the following instruction will guide you:

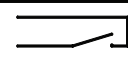
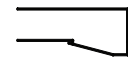
Drill a 3 mm Ø hole in the printed circuit board via the guide-hole in the middle of the bottom plate of the FV. Be careful, drill only a few millimeters into the board. This will cut a wire and automatic resetting will occur when the temperature rises above setpoint plus 5 K. This step must be done before the FV is installed and connected to supply voltage.

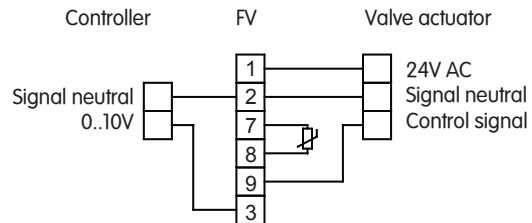
N.B. Be sure that no voltage is connected!

TECHNICAL DATA

Power supply:	24 Vac \pm 15 %
Inputs	
Sensor input:	One, 0...30°C (NTC sensor)
Automatic/remote reset:	Potential free closing contact between terminals 2 and 3
Outputs	
Relays:	One relay, change-over, 1 A, 24 and 230 Vac, breaking contact
Control signal:	0...10 Vdc
Setting	
Setpoint:	0...15°C
P-band, control signal override:	5 K, fixed
Power cons.:	2 VA
Ambient temperature:	0...50 °C
Storage temperature:	-40...+50 °C
Ambient humidity:	Max. 90% RH
CE	EMC emissions & immunity standards: This product conforms with the European EMC standards CENELEC EN50081-1 and EN50082-1 and carries the CE-mark.
Setpoint:	0...15°C
P-band, control signal override:	5 K (fixed)
Mounting:	DIN-rail, 3 modules
Protection:	IP20
Size:	52 x 85 x 74 mm

WIRING AND DIMENSIONS (mm)

1	Supply voltage 24V AC
2	System neutral
3	Input 0..10 V from controller
4	Not connected
5	 Relay 230V AC / 1A
6	
7	Frost protection sensor
8	Signal neutral
9	Y1 0..10V DC Output
10	 Relay 24V AC / 1A
11	
12	



Wiring example with active output via FV

N.B. The relay switches are shown deenergized = alarm mode

