



FV1/D is an electronic frost protection unit for airhandling units. FV1/D is connected to a sensor placed in or nearby the heating coil.

- * 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

Functions

FV1/D is a frost protection unit mainly for use in air handling systems. The unit is connected to a REGIN 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 TG-A130 or TG-D130.

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, FV1/D has an output Y1, that is connected to the control signal for control valve. When the temperature by the sensor falls below start point * for active output, the output starts to rise. If the temperature keeps falling, the output will keep rising. When temperature falls to alarm level the output will be 10 V.

* Start point is alarm setpoint plus 5 K.

Wiring of output Y1

We recommend using the MM6-24/D together with FV1/D in order to protect the external controller output. See wiring diagram overleaf.

It is also possible to use two standard diodes, i e type 1N4002, but this gives a voltage drop that decreases the control signal to the valve by approximately 0,7 V. See wiring overleaf.

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

Automatic reset

By connecting a wire between terminals 3 and 2, the alarm is automatically reset when the temperature becomes 5K higher than alarm setpoint.

Sensor

The frost protection sensor must be located in a suitable position, either as an immersion sensor (TG-D130) in the heater or as a strap-on sensor (TG-A130) on the return line.

Applications

The most common use of FV1/D is for supervising the temperature of water heating batteries in air handling systems, but the unit can also be installed in other applications where low temperature limit is to be supervised. Example of this are chillers, climate rooms, cooling systems.

Technical data

General

Supply voltage	24 V AC +/- 15%
Power consumption	2 VA
Ambient temperature	0...50°C
Storage temperature	-40...+50°C
Ambient humidity	Max 90%RH
Protection class	IP20



This product conforms with the European EMC standards CENELEC EN50081-1 and EN50082-1 and carries the CE-mark.

Inputs

Sensor	Regin NTC sensor, 0...30°C ranges
Automatic/remote reset	Potential free closing contact between terminals 2 and 3

Outputs

Relays	24 V AC 1 A, change-over and 230 V AC 1 A, breaking contact
Control signal	0...10 V

Setting

Setpoint	0...15°C
P-band, control signal override	5 K, fixed

Wiring

1	Supply voltage 24 V AC
2	System neutral
3	Automatic reset
4	Not connected
5	Closing contact 230 V AC
6	Closing contact 230 V AC
7	Sensor input
8	Signal neutral
9	Y1 0...10 V output
10	Common
11	Closed contact
12	Open contact

Fig 1
Wiring example when using active output function

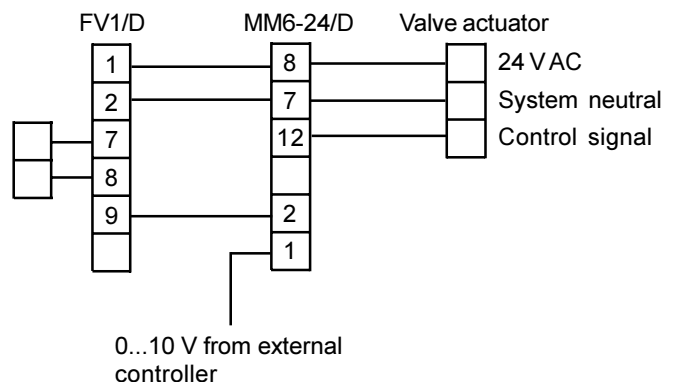
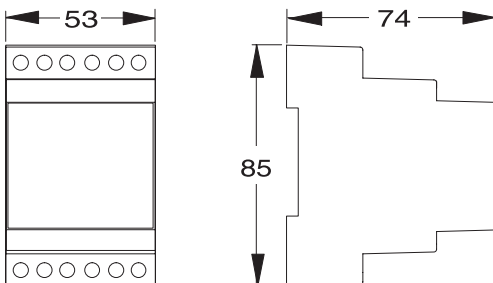
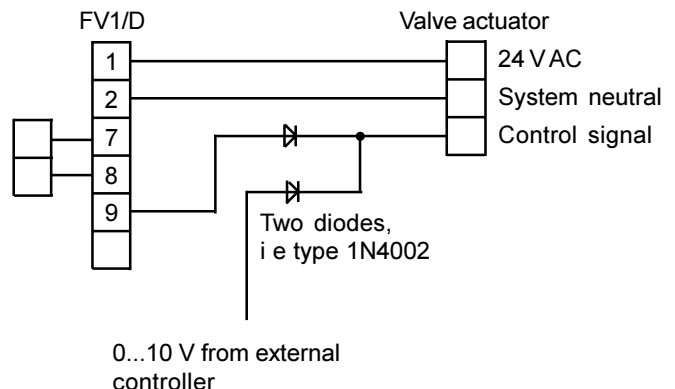


Fig 2
Wiring example when using active output function



FOR INDOOR CLIMATE WITH OPTIMUM CONTROL

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