FläktGroup®

PI FUNCTION MODBUS COMMUNICATION
CHILLED BEAMS

PI FUNCTION (OPTION)

For **Demand Controlled Ventilation** operation, the Pi Function accessory must be mounted on the chilled beam. Thanks to this function, an actuator will then change automatically the nozzle position in order to change primary airflow.

The chilled beam system will be able to follow different operation sequences depending on the controller chosen. It is possible to set different airflows according to occupancy level or to manage air quality thanks to a CO2 sensor connected to the controller. Three parameters can be set in the actuator : V_0 for non-occupancy, V_{min} for standard occupancy and V_{max} (boost) for high occupancy level.

Combined with the STRA-24 room controller, different modes are offered : OFF, Standby, unoccupied, occupied and boost. For each modes, different sequences between water and air are possible: cooling without free cooling, cooling with free cooling and airflow depending on CO_2.

The Pi function keeps airflow at set point value despite pressure fluctuations in the duct. The Pi Function is easy to retrofit and applicable to any ductwork system owing to its pressure independent functionality.

Note. When using Pi Function, induction is always symmetrical and a room controller is required to operate Pi Function with link to occupancy sensor. Duct pressure has to be maintained between 40 and 140 Pa.

Caution! If Pi Function is installed as a retrofit, there is no need for a damper before the chilled beam. Any previously installed damper, should be set to fully open position or removed.
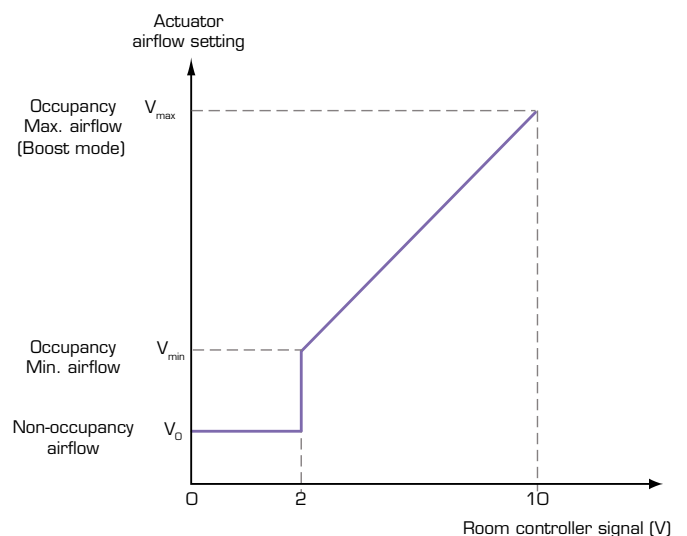
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MODBUS INSTALLATION

1. Connect A and B (2 white cables).

2. Default Modbus address is 1. If you would like to change the address, then turn right knob to address and then the actual address is displayed on screen.
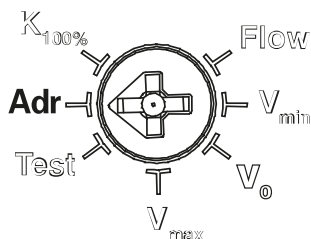
3. Then select address with value selector. Address flashes on screen when selected.
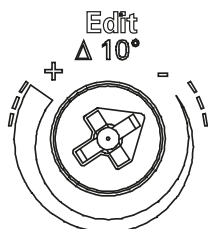
4. Set baudrate 19200, 8 Data bits, Parity Even, 1 stop bit.

5. If another baudrate want to be used then factory setting (19200, 8 Data bits, Parity Even, 1 sto) bit), baudrate can be selected direct on display as described below

6. Modbus address is chosen according to description above and after the address is confirmed by 2 flashing, the value selector is turned to end stop "+". The displays shows "2 in" which indicates the second level. At second level Baudrate can be selected according to "display number" in table below. When value is selected, display flashing 2 times to confirm the new value.

7. Baudrate can also be selected with Modbus parameter 568 with use of same table below.

Display number	EEPROM-value	Baudrate	Parity	Stop bits
1	0	9600	none	2
2	1	9600	even	1
3	2	9600	odd	1
4	3	19200	none	2
5	4	19200	even	1
6	5	19200	odd	1
7	6	38400	none	2
8	7	38400	even	1
9	8	38400	odd	1

TABLE 1: HOLDING REGISTER

Name	Address decimal	Data Type	Value range	r/w	Description	Memory def. value
Set point	0	Word	0...10000	r/w	Setpoint [%] 0...100% V0 = −1 Vmin = 0% Vmax 100 %	RAM
Override control	1	Word	0...5	r/w	Override control '0' - - - '1' open '2' close '3' min '4' max '5' V0	RAM
Command	2	Word	0...4	r/w	Command '0' - - - '1' adaption '2' - - - '3' - - - '4' controller reset	RAM
Device ID	3	Word	0...6	r	Device ID '0' - - - '1' standard actuator '2' VAV '3' fire damper '4' GUAC VAV '5' GUAC CM '6' GT	EEPROM 2
Relative position	4	Word	0...10000	r	Relative position [%] 0...100.00	RAM
Relative flow	6	Word	0...10000	r	Flow [%] 0...100 100% = sqrt(150) × K100%	RAM
Absolute flow	7	Word	0...65535	r	Flow [l/s]	RAM
Analog output 10]	10	Word	0...10000 [mV	r/w	Analog output [mW]0...10000	RAM
V_0	119	Word	0...65535	r/w	V0 value [l/s]	EEPROM 10
V_{min}	120	Word	0...65535	r/w	Vmin value [l/s]	EEPROM 15
V_{max}	121	Word	0...65535	r/w	Vmax value [l/s] E	EPROM 20
$K_{100\%}$	221	Word	0...1000	r/w	K100% value	EEPROM

Specifications are subject of alteration without further notice