ABB i-bus® EIB / KNX
LFA/S x.1
Blower-/Fan Coil-Actuator
Blower-/Fan Coil Actuators

- Blower- and Fan Coil Actuators are basic devices in HVAC
- Completion of the ABB i-bus® EIB / KNX range with two actuators
- Control of 3- or 5 speed fans
- No integrated controller to regulate the room temperature
- Control values sent by external components like room thermostat or EIB/KNX push button
Blower-/Fan Coil Actuators, LFA/S x.1

- LFA/S 1.1, MDRC, 1fold (1 Fan)
- LFA/S 2.1, MDRC, 2fold (2 Fans)
Hardware LFA/S x.1

- Compact component with 2 outputs per module
- No manual operation in order to exclude damage of fan
- 1fold actuator for 3 level Fan control
- 2fold actuator for two 3- or one 5 level Fan control
Blower-/Fan Coil Actuators, LFA/S x.1

- LF/A x.x receives input signal via EIB / KNX
- Manual Operation
  - 1Bit object for each fan speed
  - 1Byte object for any fan speed
  - 1Bit object for going up/down
- Automatic Control
  - Temperature detection and regulation via room thermostat
  - Control output Heating and / or Cooling
  - Switching between Heating / Cooling
Blower-/Fan Coil Control

- Types of Fan control (3- and 5 speed)
  - Control via toggle switch (3 steps)
    - OFF
      - Output A: 0
      - Output B: 0
      - Output C: 0
    - Fan speed 1
      - Output A: 1
      - Output B: 0
      - Output C: 0
    - Fan speed 2
      - Output A: 0
      - Output B: 1
      - Output C: 0
    - Fan speed 3
      - Output A: 0
      - Output B: 0
      - Output C: 1
  - Control via switch (3 steps)
    - OFF
      - Output A: 0
      - Output B: 0
      - Output C: 0
    - Fan speed 1
      - Output A: 1
      - Output B: 0
      - Output C: 0
    - Fan speed 2
      - Output A: 1
      - Output B: 1
      - Output C: 0
    - Fan speed 3
      - Output A: 1
      - Output B: 1
      - Output C: 1

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Parameterisation Fan

- Toggle switch or switch
- Start up behaviour (direct or any fan speed)
- Waiting time between switching
- Minimum time in a level
- Threshold for switching to another speed
- Hysterese
- Object fan status
e.g. for activation of an external fan or a fan main switcher
Control of a valve via LFA/S x.1

- LF/A x.1 generates additional control signals for heating and/or cooling valves
- Control Signal available as an EIB / KNX communication object
  - High flexibility regarding switching load, life span and noise
- Valve objects will be set to „1“ or „0“ depending on the control output (heating / cooling)
Forced control and operating modes LFA/S x.1

- Separate Fan- and Valve limitation
- Limitation to a speed level or to a speed range
- Activation via 1Bit or 1Byte objects
- Forced control (only 1 Bit object) e.g.
  - Frost / Heat protection
  - Comfort mode
  - Night mode
  - Standby mode
  - Automatic mode
Additional functions LFA/S x.1

- Monitoring of room thermostat with adjustable fault operation
- Function of fan and valve adjustable in case of bus voltage failure (unchanged or OFF) and recovery (variable)
- Status Byte for indication of operating mode
- Separate feedback of required and real fan speed
Free channels of „Switch Actuator“ LFA/S x.1

- Functionality of a Switch Actuator
  - ON / OFF
  - Time function (Staircase light)
    - Time for staircase light via EIB/KNX changeable
    - Time function can be enabled /disabled via EIB/KNX
    - No warning
Free channels of „Switch Actuator“ LFA/S x.1

- Valve Control
  - Same functionality as the heating actuator SA/S
  - Continuous control (1Byte) or 2-step control (1Bit)
  - Valve normally closed or open
  - Forced operation
  - Monitoring of room thermostat
  - Functionality flushing
Circuit Diagram Blower and Fan Coil actuator
**Principle Fan Coil Unit**

- Example: Fan Coil Unit, 4 – pipe system
  - 2 Heat exchanger for Heating and Cooling

![Diagram of a fan coil unit with labels for fan, motor, 2 valves, separate cool and heating circuits, and 2 heat exchangers.](image)