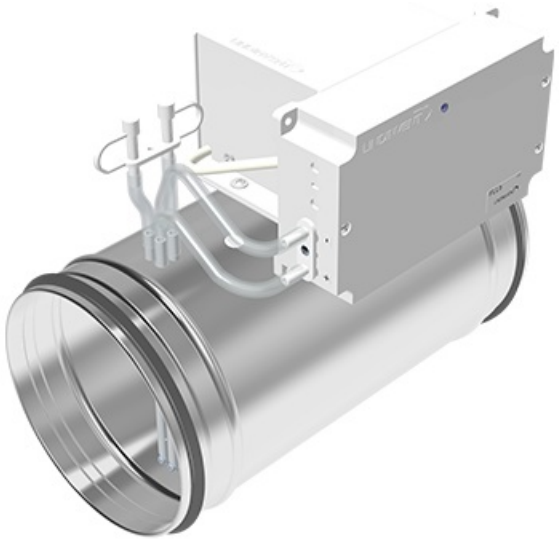

# LINDINVENT DCV-FLb Airflow Unit 2-Stage Controller Owner's Manual



Contents



## LINDINVENT DCV-FLb Airflow Unit 2-Stage Controller



## Introduction

- DCV-FLb is part of Lindinvent's series of smart and installation-efficient dampers for protective ventilation or on-demand control of indoor climate at workplaces.

## FUNCTION

DCV-FLb consists of a damper with a measuring unit, a damper motor, and a regulator. The device can quickly and safely switch between a fixed normal flow (workflow) and a lower minimum flow (standby mode).

- Suitable for controlling equipment where the air ow does not need a continuous demand control (it could be in a kitchen where a switch should trigger the higher or lower air ow)
- Timer function which after a set time restores the airflow to the normal flow (working mode)
- Connection for user panel FLOCHECK F with button selection to be able to switch between working modes
- Reports measured airflow via CAN
- Connected via Node-ID to a local area network (CAN) for stable communication with other controllers
- Gateway NCE is connected to the local network for access and communication via a parent system
- The controller is programmable and its parameters can be read or set locally via handset or centrally over the network
- Equipped with Bluetooth® for communication via mobile application LINDINSIDE

## Circular or Rectangular

The circular version (Ø100-500 mm) is delivered as a complete module with the constituent parts connected and ready for installation as a unit. DCV-FLb Rectangular is ordered as a set of parts to be assembled on-site. DCV-FLb in circular design is available in the database for MagiCad. DCV-FLb rectangular drawn as damper JSPM and measuring unit SMRD.

## flow measurement and airflow

- Circular & Rectangular
- Measurement range: 0.5 – 6.0 m/s
- Maximum range: 0.2 – 7.0 m/s

- Accuracy: ± 5 % or at least ± x l/s
- (where x = The channel area in dm2)
- Airfl ow calculation (q): q = k * √ Δp [l/s]

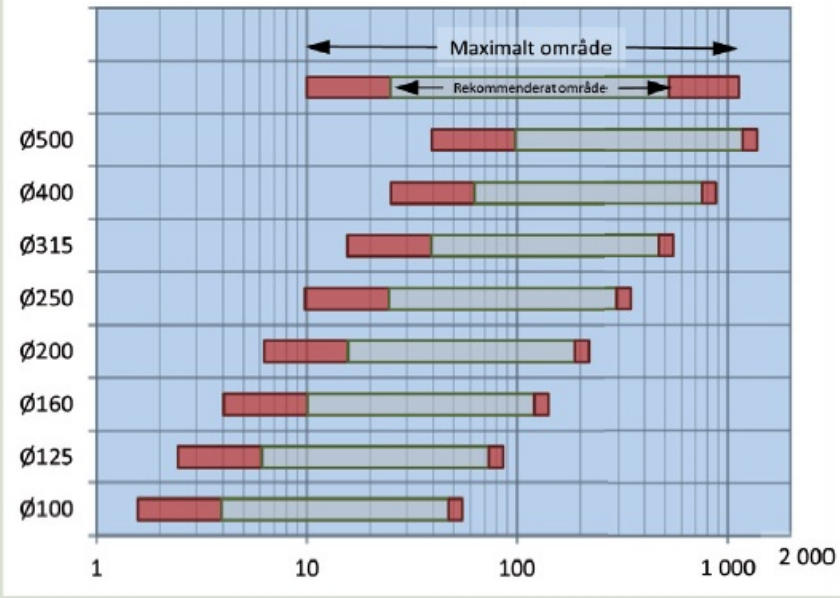
**k-factor Rectangular**

- Calculate k as follows:
- k = 749 * A where A = Width(W) * Height(H) where measures W and H in meters
- An example: SMRD 500×200 = 749 * 0,5 * 0,2 = 74,9

**k-factor Cirkular**

- The k-factor can be read from the damper or the table in the product description for SPMF.

**Flow range per damper size DCV-FLb Circular**




*Flow range [l/s] for each size of SPMF.*

- Flow range [l/s] for each size of SPMF.

## PRODUCT DESCRIPTION

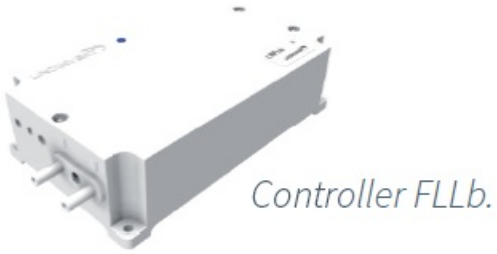
**Ingoing parts with specifications**

- The products below are included as parts of DCV-FLb.
- The damper and measuring flange are either for a circular or a rectangular design.
- See the product description for more complete technical specifications.
- DCV-FLb Circular (delivered with all parts mounted and connected)

**Airflow controller, 2-stage – FLLb**

Integrated digital airflow sensor

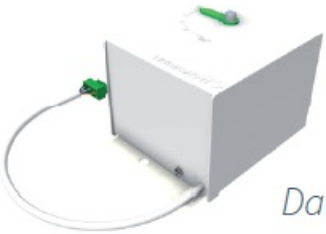
- CAN connection
- Pre-assembled in DCV-FLb Circular
- IP-class: IP53
- Operating temperature limits: 0°C to 40°C; <85% RH
- Temperature limit storage: -20°C to 50°C; <90% RH
- Weight: 0.3 kg
- Its placement on either the extract air or the supply air along with the damper size (or k-factor) and the airflow levels is entered for easy commissioning



Controller FLLb.

**Damper actuator – DBA**

- Pre-assembled in DCV-FLb Circular
- Microprocessor-controlled BLDC motor
- Indicator pin to show the damper opening angle
- IP-class: IP42 (mounted on the actuator holder)
- Operating temperature limits: 0°C to 40°C; <85% RH
- Temperature limit storage: -20°C to 50°C; <90% RH
- Weight: 0.9 kg



Damper actuator DBA.

**Circular damper with measuring flange – SPMF**

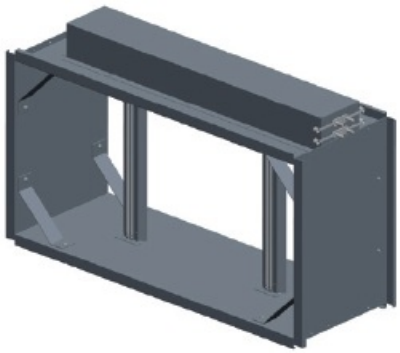
- Measuring flange with double measurement points
- Full damper blade
- Actuator shelf adapted for Lindinvent’s damper actuator
- Pre-assembled in DCV-BLb Circular
- Tightness class 3 according to VVS AMA
- Pressure class A according to VVS AMA
- Weight: Aft er damper size (1 to 10 kg)

Damper SPMF.

**DCV-FLb Rectangular (All parts are delivered for assembly on site)**

**Rectangular measuring flange – SMRD**

- Included in DCV-FLb rectangular
- Delivered separately for on-site installation
- Measuring flange with double measurement points
- Case and measuring flanges of galvanized sheet steel (C3)
- Measuring tubes of aluminum (C4)
- Weight: Aft er damper size (2 to 20 kg)



Measuring flange SMRD.

**Rectangular damper – JSPM**

- Included in DCV-FLb rectangular
- Delivered separately for on-site installation
- Case and of galvanized sheet steel (C3) as standard
- Damper blades of aluminum (C4)
- Tightness class 2 according to VVS AMA
- Pressure class A according to VVS AMA
- Available with circular connection with size 700×700 or 800×800
- Weight: Aft er damper size (3 to 40 kg)

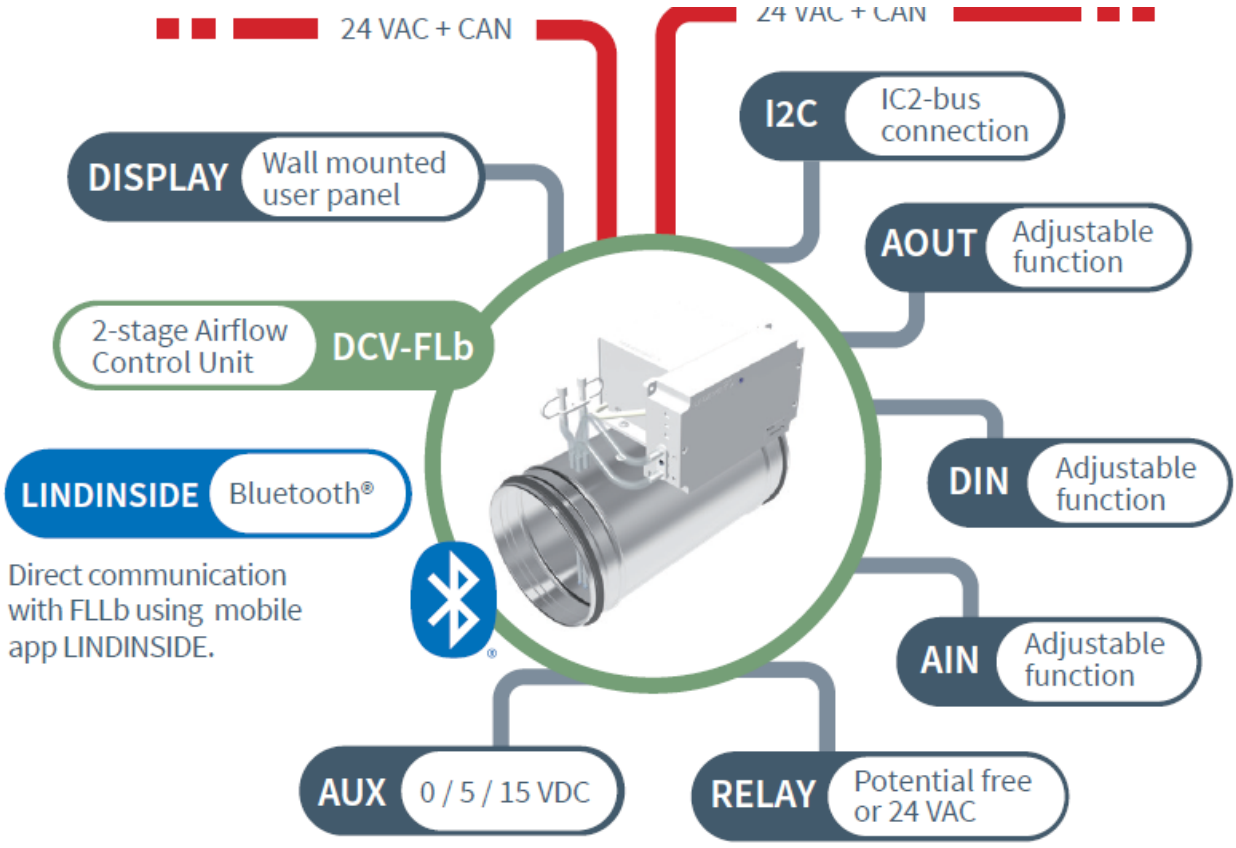
## Electric interlock contactor – EFK

- Can break voltage to electrical outlets to reduce risks when handling flammable substances
- Settings for recovery etc are available in FLL

- To be ordered as an accessory

*Damper JSPM.*

**Connection Diagram**



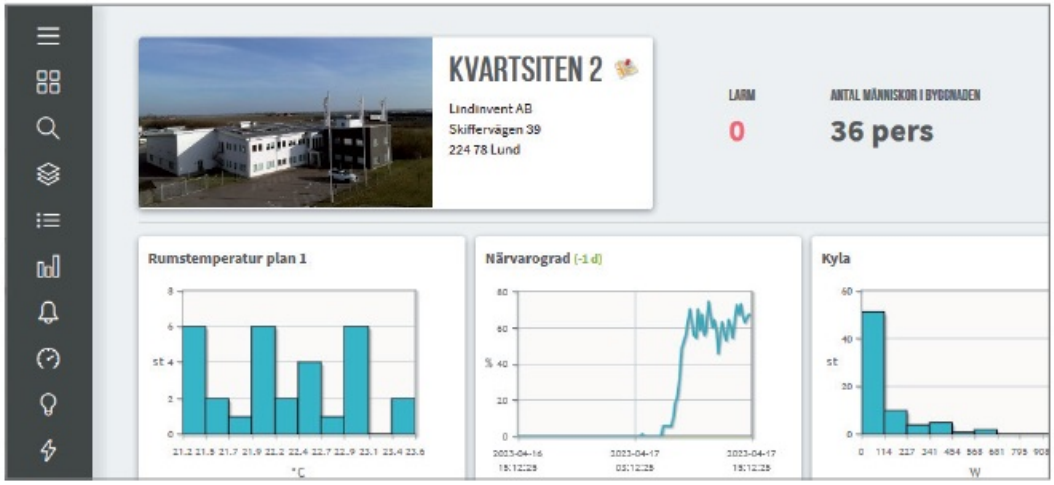

- Connection diagram for FLLb. The regulator is connected to CAN and voltage fed via Lindinvent's 4-conductor cable.

**Connections**

- Two terminals for 24 VAC + CAN
- Terminal for 0-10 VDC AIN and AOUT (dedicated to the damper actuator)
- Terminal for AIN2 and AOUT2, General 0-10 VDC
- Terminal for DIN1 (PULL-UP 5V or 0 – 5 VDC)
- Terminal for relay function (potential-free switch or 24 VAC)
- Terminal for generic power supply (AUX: 0, 5, 15 VDC)

- Terminal for I2C-bus
- Module for Bluetooth®
- Terminal for user panel (FLOCHECK F version B02)

**VISUALIzation with LINDINSPECT®**
LINDINSPECT® is a powerful web-based tool that is part of the system software that enables a central and coordinated optimization, administration, and visualization of everything from control units to supplementary systems for comfort and sustainable energy use in buildings.




- Detail from the start page in LINDINSPECT® from which the climate control can be visualized and administered.

**User interface**

- Look for details via the product name and its product description.
- Fixed panel FLOCHECK F, wired directly to FLLb
- Login locally directly to the controller via mobile phone with the LINDINSIDE app
- Networking over Gateway NCE and Lindinvent's central unit with LINDINSPECT®
- Other parent system via Gateway NCE and ModbusRTU or Modbus TCP

## Troubleshooting And Alarm Notification

- Systems with LINDINSPECT® log and set alarm flags in case of deviations.
- Alarms can also be indicated both acoustically and optically by connecting the user panel FLOCHECK F to the controller.

**Easy Commissioning**

- The internal airflow sensor is delivered factory-calibrated.
- A few selected control variables, such as the current channel diameter or k-factor, are requested in connection with commissioning.

## Order Format

- Circular Ø100-500 mm

- The airflow control unit, 2-stage, Lindinvent AB,
- DCV-FLb-[Damper size][Material]-[Colour]
- Damper size: 100, 125, 160, 200, 250, 315, 400, 500

**Material:**

- Galvanized sheet steel(C3)
- Stainless acid-resistant sheet steel(C5)
- Epoxy-coated sheet steel (E)
- Powder-coated sheet steel(P)

Omitted material specification: Galvanized(C3).

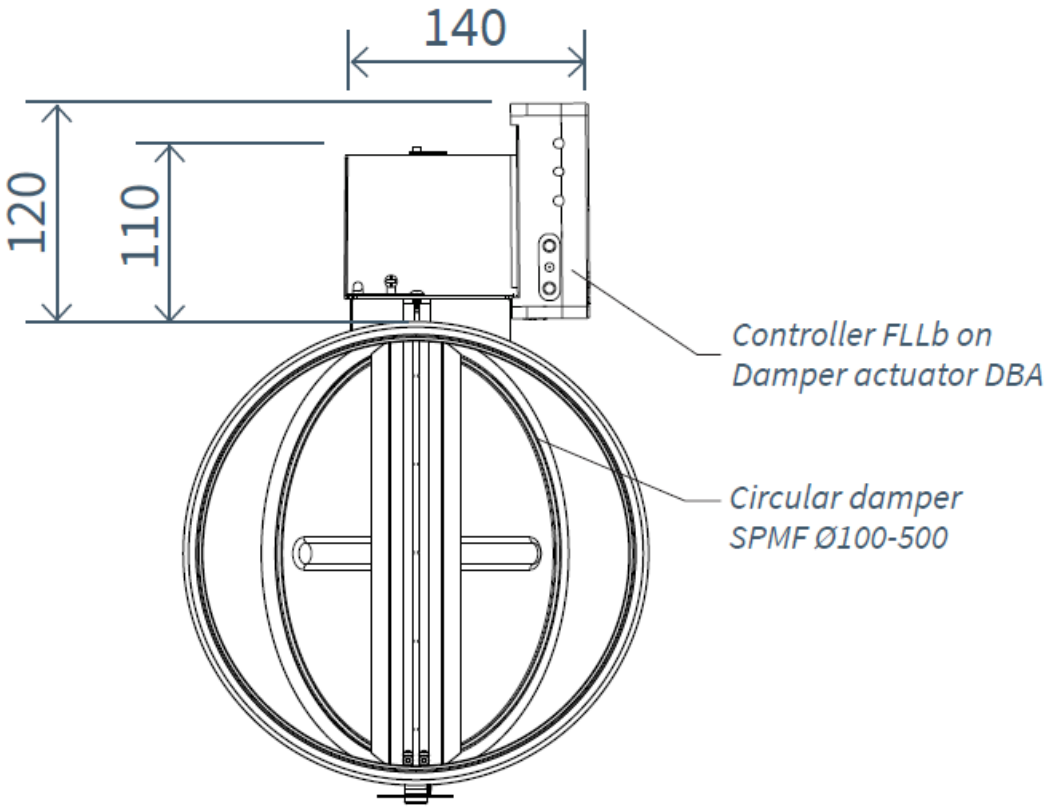
**Color: RAL9003 (Standard)**
To be stated only for E and P. Other colors and gloss levels can be ordered.

**Example:**

- DCV-FLb-250C3 (Circular DCV-FLb galvanized)
- DCV-FLb-160P-RAL9003 (Circular DCV-FLb, Powder-coated RAL9003)
- Circular duct connection Ø630 mm
- The airflow control unit, 2-stage, Lindinvent AB,
- DCV-FLb-630(700×700)[Material] or
- DCV-FLb-630(800×800)[Material]
- Size: 700×700 or 800×800 available
- Material: Galvanized (C3)
- Example: DCV-FLb-630(700×700)C3
- DCV-FLb-630 is delivered as a construction kit. The rectangular damper JSPM 700×700 mm with circular connection 630, a circular measuring flange with diameter 630 mm, controller FLLb, and damper actuator DBA are delivered separately to be installed on-site.
- Rectangular 200×200 -> 1600×1000
- Airflow control unit, 2-stage, Lindinvent AB, DCV-FLb-[WxH][Material]
- Standard damper sizes BxH: from 200×200 to 1600×1000 mm
- Width(W): from 200 to 1000 mm in intervals of 100, then in intervals of 200 mm
- Height(H): from 200 till 800 mm in intervals of 100, then in intervals of 200 mm
- Contact Lindinvent if you need non-standard dimensions.
- Material: Galvanized(C3)
- Example: DCV-FLb-600x300C3
- Rectangular DCV-FLb is delivered as a construction kit where damper JSPM, measuring flange SMRD, controller
- FLLb and damper actuator DBA are delivered separately to be installed on-site.

## Dimensions

**Dimensions (mm)**




*Dimensions of DCV-FLb Circular.*

### Complementary documentation DCV-FLb

- The document can be viewed on the product page at **www.lindinvent.com**

| Document | Comments |
|---|---|
| **Installation instructions** | Combined installation instructions for DCV-FLb and airflow controller FLLb (mounting + connection). |
| **Operation instructions** | Short presentation of LINDINSIDE. |
| **Maintenance instructions** | Considered maintenance-free. For cleaning and control measurements of the flange, see the maintenance instructions for SPMF. |
| **External connection diagram** | Shows how conductors from equipment are connected to FLLb. |
| **Environmental product declaration** | For assessment at Byggvarubedömningen. |
| **Modbus list** | Last entry in the modbus list for FLLb. |
| **AMA-text** | Available. |



### Documents / Resources

| | |
|---|---|
|  | **LINDINVENT DCV-FLb Airflow Unit 2-Stage Controller** [pdf] Owner's Manual<br>DCV-FLb, DCV-FLb Airflow Unit 2-Stage Controller, Airflow Unit 2-Stage Controller, Unit 2-Stage Controller, 2-Stage Controller, Controller |

## References

- **User Manual**