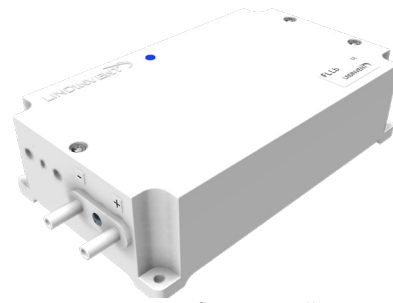


FLLb AIRFLOW CONTROLLER, 2-STAGE

INTRODUCTION

FLLb maintains its normal flow (working mode) that can be decreased to a minimum flow (standby mode). The controller together with user panel FLOCHECK F is installed as control and safety equipment for a down flow bench or similar protective ventilation equipment. FLLb can be ordered as part of the smart damper control unit DCV-FLb.

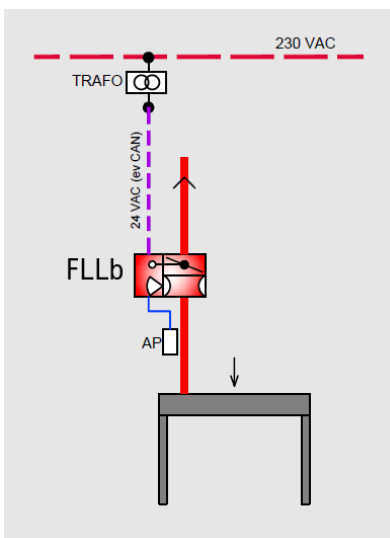


Airflow Controller, 2-stage - FLLb.

FUNCTION

Through damper regulation, FLLb can quickly and safely switch between a fixed normal airflow (workflow) and a lower minimum flow (standby mode).

- Suitable for controlling equipment where the airflow does not need a continuous demand control (it could be in a kitchen where a switch should trigger the higher or lower airflow)
- 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



Functional chart:
Down-flow bench with
FLLb and
bench guard
FLOCHECK F (AP).

TECHNICAL SPECIFICATIONS

Airflow Measurement and Control

Airflow sensor: Digital (factory calibrated)
Recommended range: 0.5–6.0 m/s
Maximum range: 0.2 - 7.0 m/s
In laboratories, one should not go lower than 0.5 m/s, taking into account requirements for accuracy.
Tolerance*: $\pm 5\%$ or at least $\pm y$ l/s
(where y = duct area in dm^2) *Applies together with Lindinvent's damper motor and regulator.
Performance: Change effected within 5 s (95% within 4 s)

Design Features

Spacious enclosure with breakable cutouts adapted for cables ~4 & ~6 mm. The cover, which is removable, replaces at reassembly the need for cable glands by clamping the cables. External ears for attachment. Lid with LED tube for exposure of LED showing operating mode.

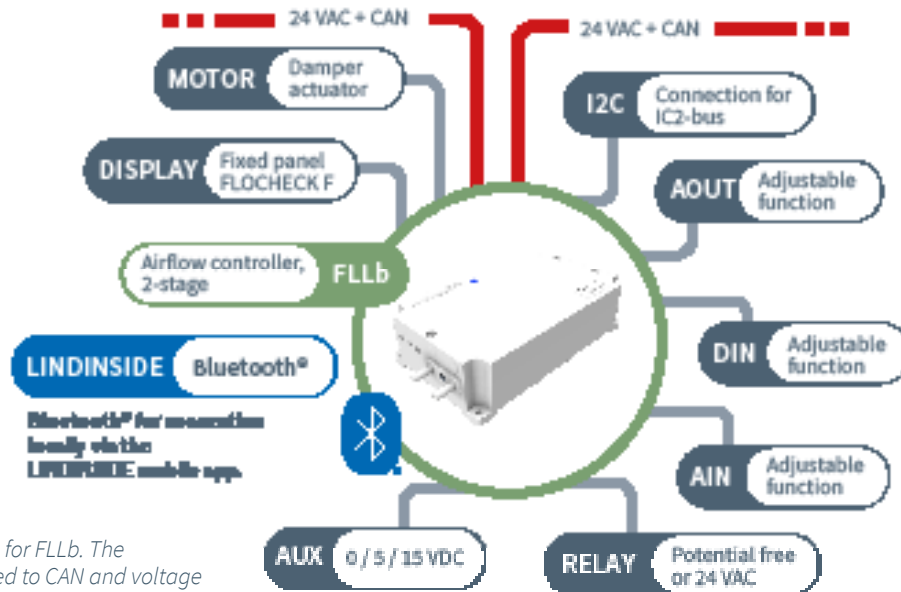
General

Dimensions (mm): 176 x 105 x 52 (LxBxH)
Material: Polystyrene (Encapsulation)
Nettweight: 0.3 kg
Colour: RAL 9003
IP-class: Complies with IP53
Temperature limits:
Operation: 10°C to 40°C; <85% RF
Storage: -20°C to 50°C; <90% RF

Electrical System

Supply voltage: 24 VAC
Effect: 1,5 VA
CE-marking: Complies with EMC and the low voltage directive

CONNECTION DIAGRAM



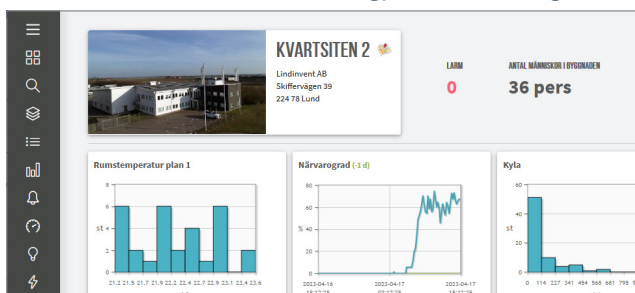
Connection diagram for FLLb. The regulator is connected to CAN and voltage fed via Lindinvent's 4-conductor cable.

CONNECTIONS

- Two terminals for 24 VAC + CAN
- Terminal for 0-10 VDC AIN and AOUT (dedicated for 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 it's 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 ModbusTCP

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 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.

ACCESSORIES

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

Down-flow Bench Safety guard - Flocheck F

- To be wired to the controller
- To be ordered as an accessory

Complementary Documentation

Document can be viewed on the product page at www.lindinvent.com

Document	Comments
Installation instructions	Combined installation instructions for DCV-FLb and controller FLLb (Mounting + connection).
Operation instructions	Instructions for handling the mobile application LINDINSIDE for setting the node ID
Maintenance instructions	Considered maintenance free.
External connection diagram	Shows how conductors from equipment are connected to FLLb.
Environmental product declaration	For assessment at Byggsvarubedömningen in Sweden.
Modbus list	Last entry in the modbus list for FLLb.
AMA-text	Available for download in pdf and word formats via the product's website.