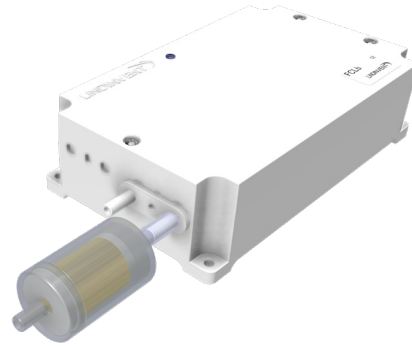


### INTRODUCTION

Fume cupboard controller FCLb maintains a constant air speed in the hatch opening regardless of the hatch position up to the marked safe height.

The Swedish Work Environment Authority's regulations (AFS 2020:1, AFS 2018:1) set requirements for fume cupboards and hygienic limits respectively.



Fume cupboard controller FCLb.

### FUNCTION

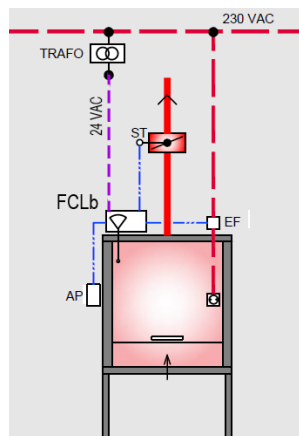
FCLb controls, via connected damper with damper actuator, the air velocity in the fume cupboard opening to 0.5 m/s regardless of the hatch position up to a safety level.

- In addition to the normal operating mode, you can select emergency or rigging mode using fume cupboard monitor FLOCHECK V. An acoustic and optical alarm is activated in case of emergency. In emergency mode the air velocity is increased. In rig mode, the air velocity is lowered. From rig mode, the control is back to normal operation after a preset period of time.
- Can be connected via a Node ID to a wired loop, a local area network (CAN), for stable communication between cooperating control units.
- Gateway NCE is connected to the local network for access and communication via a parent system.
- The controller, which is programmable, has parameters that can be read and set locally or centrally.
- Equipped with Bluetooth® for local communication via mobile application LINDINSIDE.

### MEASURING PROBE

The controller is supplied with a measuring probe for air velocity which is mounted in the fume cupboard. The measuring probe is connected via hose to the air velocity sensor in FCLb.

*Operating card showing: FCLb, fume cupboard monitor FLOCHECK V (AP), transformer 230/24VAC, damper actuator (ST) and electric interlock box (EF) without CAN connection.*



### TECHNICAL SPECIFICATIONS

#### General

Dimensions (mm): 176 x 105 x 52 (LxBxH)  
 Material: Polystyrene (Encapsulation)  
 Nettweight: 0,4 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

#### 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.

#### Air Velocity Control

Massflow sensor: Analogue, integrated in the controller. The sensor is connected to two sockets in the enclosure. An outlet (+) for reference pressure (with filter) and an outlet marked (-) for the hose from the measuring probe.

Measurement range: 0.2-1.0 m/s

Tolerans: ± 0,04 m/s between 0,3 och 0,8 m/s

Performance: Change regulated within 3 s (90% within 2 s) at maximum change from the 300 mm safety level.

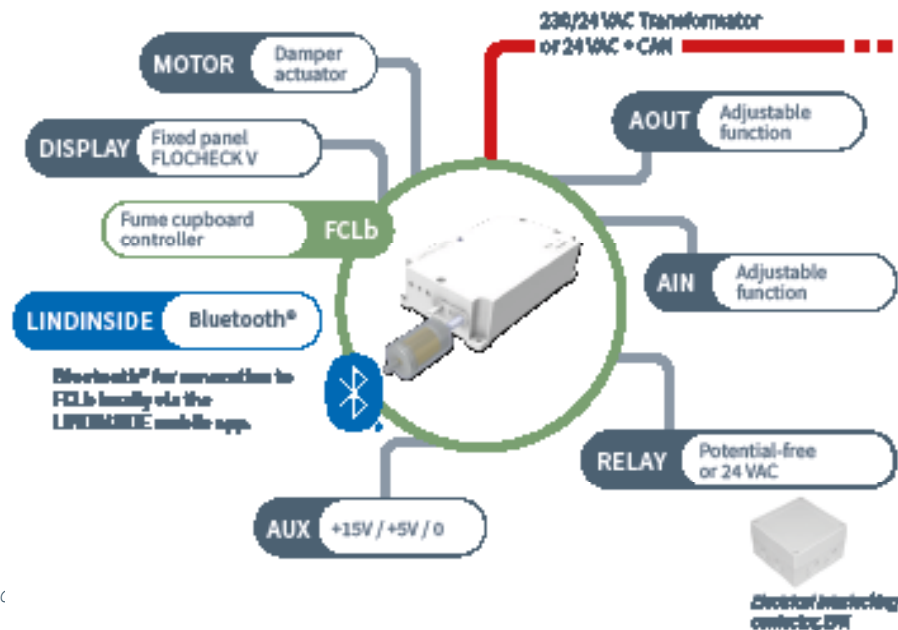
#### Electrical System

Supply voltage: 24 VAC

Effect: 1,5 VA

CE-marking: Complies with EMC and the low voltage directive.

## CONNECTIONS TO FCLb



Cc

## CONNECTIONS

Two terminals: 24 VAC + CAN.

Terminal: 0-10 VDC AIN and AOUT for the damper actuator.

Terminal: AIN2, General 0-10 VDC

Terminal: AOUT2, General 0-10 VDC

Relay: 24 VAC or Potentialfree

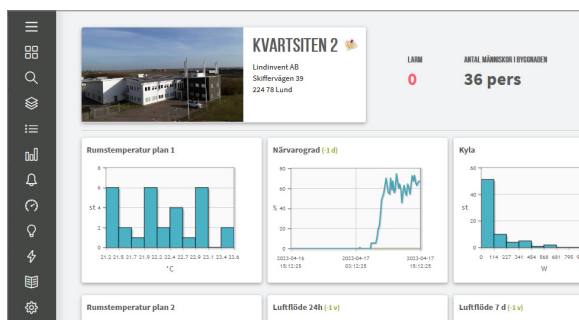
Terminal: Generic power supply (AUX: G0, +5V, +15V)

Module for Bluetooth®

Terminal: Monitor and user panel (FLOCHECK V version B02)

## VISUALIZATION TOOL LINDINSPECT®

LINDINSPECT® is a powerful web-based tool which is part of the central unit system software. Everything from control units to supplementary systems for comfort and sustainable energy use is made accessible for central optimization, administration and visualization.



Detail from the home page in LINDINSPECT® where equipment and system solutions can be visualized and administered.

## USER INTERFACE

Look for details about a specific interface via its product name and product description.

- Fixed panel FLOCHECK V, which is wired directly to FCLb.
- Log in to the controller via mobile phone and the LINDINSIDE app.
- Via Lindinvent's central unit with the visualization tool LINDINSPECT®. FCLb must then be part of a network (CAN) connected to the central unit via Gateway NCE.
- Another external central system through Gateway NCE and ModbusRTU or ModbusTCP.

## CONTROL &amp; ALARM

By the fixed panel FLOCHECK V, an alarm is indicated both acoustically via a buzzer and optically via LED in the event of air speed deviation. Systems with LINDINSPECT® can log air speed continually and set an alarm flag in the event of deviation.

## CALIBRATION

The controller requires on-site airspeed calibration.

## ELECTRICAL INTERLOCKING - EFK

As a safety measure, through the electric interlock contactor EFK, the controller can cut the voltage to electrical outlets after an adjustable time at low air speed in the cupboard opening. An installation with EFK can reduce the risk of explosions when handling flammable substances.

**ACCESSORIES:**

A fume hood equipped with the FCLb controller typically includes the following accessories. Most of these items are included in the FCLb fume hood package that can be ordered.

**Measuring Probe with Connection Hose**

- Included with an FCLb package order.
- The measuring probe should be extended if the hood's width is 1500 mm or more.
- The placement of the measuring probe depends on the fume hood type and verification measurement.

**Filter for Reference Pressure**

- The FCLb comes with a filter that should be installed on the outlet marked "+ Ref".

**Fume Hood Monitor FLOCHECK V**

- Included with an FCLb package order.
- A fixed panel with a wired connection to the controller.
- The monitor, which also serves as an operator panel, is part of the hood's safety equipment.

**FLOCHECK V User Manual**

- Included with an FCLb package order.
- Laminated for durability, it can be posted next to the fume hood monitor.
- Shows and explains functions.
- Bilingual: English and Swedish.

**DBA Damper Actuator**

- Included with an FCLb package order.
- Comes with a 3-meter cable.

**PFS20 Transformer**

- Included with an FCLb package order.
- Plug, 230/24 VAC.

**Dampers**

- Accessories that are ordered separately.
- Option 1:  
FC-SPM, a modified variant of the circular standard damper SPM without a measuring flange.
- Option 2:  
FC-SPMF, a modified variant of the circular standard damper SPMF with a measuring flange.

**EFK Interlock Box**

- Accessory that is ordered separately.
- For increased safety when handling hazardous materials.

**ADDITIONAL PRODUCT DOCUMENTATION**

Documents can be accessed at [www.lindinvent.com](http://www.lindinvent.com)

Document	Comments
Installation Instructions	Installation instructions for FCLb (assembly, connection, and commissioning via the FLOCHECK V user panel).
Commissioning Instructions	Handling of the LINDINSIDE mobile application and setup of control parameters.
Maintenance Instructions	Considered maintenance-free.
External Connection Diagram	Shows how equipment is connected to the FCLb.
Environmental Product Declaration	For assessment at Byggarubedömningen in Sweden.
User Manual	Handling of the FLOCHECK V fume hood monitor with a description of operating modes.
Modbus List	Latest Modbus list for FCLb.
AMA-Text	Available for download via the product's webpage.