ES 999

Co_2 + NTC Sensor Basic
for duct mounting

**Sensor for control of ventilation
plants for increased comfort**

Properties:

The ES 999 is equipped with an 0-10V proportional output based on the current CO_2 level, as input to a regulator or a ventilation plant. Equipped with a 22kOhm NTC sensor for temperature measurement.

Both design and ease-of-use have been prioritised:

      Easy to mount, install and adjust.

      Maintenance free.

      Can be used for measuring of CO_2 and temperature.

CO_2 sensor uses the widely used ABC algorithm, which ensures long life without calibration. Only the room cannot be used constantly, but must regularly get sufficient airflow to lower the CO_2 to fresh air level.

Function:

The ES 999 measures the CO_2 level in the exhaust duct and converts this measurement to a proportional 0-10V output. The ES 999 can also be used as an ON/OFF controller by means of an external 0-10V setpoint relay. The ES 963 power supply is designed for use with the CO_2 sensor, and it is equipped with an integrated setpoint relay.

Co$_2$ proportional output:

The voltage varies proportionally with the CO_2 level from 0 to 10V corresponding to 0 and 2000 ppm.

Temperature sensor:

Temperature sensor is NTC 22k Ohm.

IMPORTANT: The sensor is only functional with the cover fitted on the box.

Mounting / installation:

The sensor is mounted on the ventilation duct.
A hole of Ø 20mm is drilled for the sensor.
The mounting bracket is mounted with
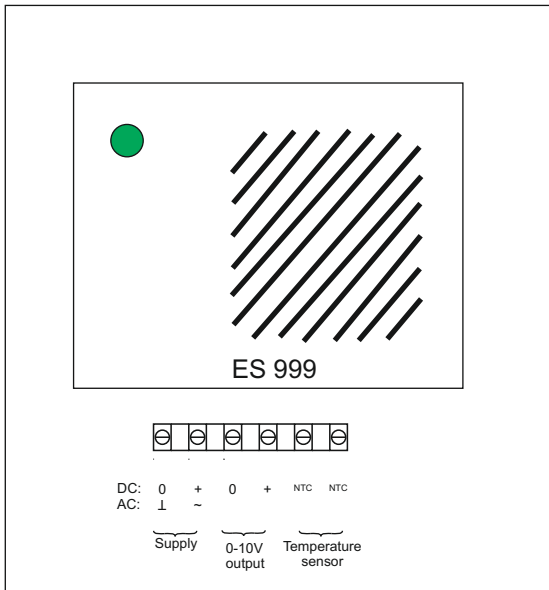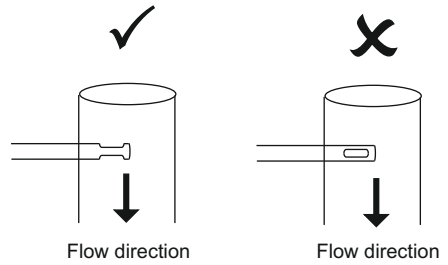self cutting screws.
NB! Be sure to place the sensor correctly in
relation to the flow direction (see drawing).

Incorrect mounting may result in faulty CO_2
readings.

Flow direction   Flow direction

The current low voltage regulations must be observed.

IMPORTANT:
Cable transfer (glands / clamps) must be fitted tightly around the cables/wires as
leaks will result in less accurate CO_2 readings.

Mounting base
inside box

ES 999

DC: 0   +   0   +   NTC   NTC
AC: ⊥   ~

Supply   0-10V   Temperature
            output   sensor
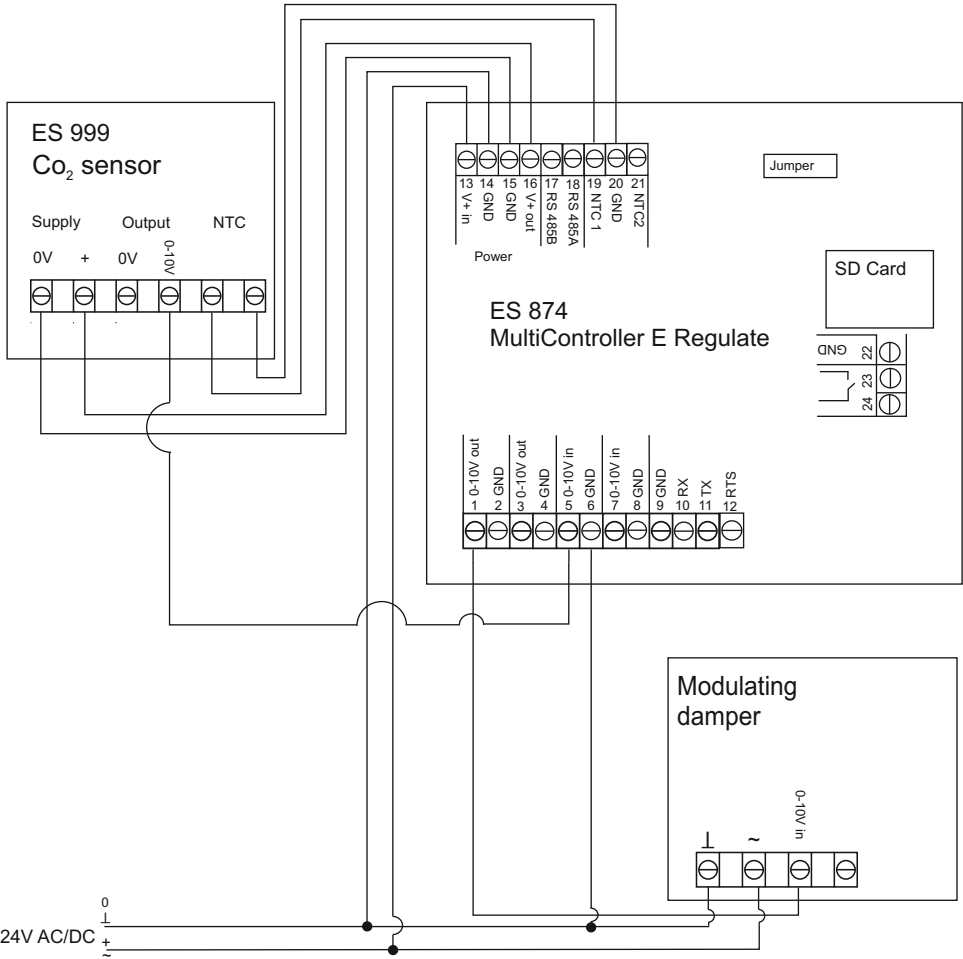
Supply:
Supply to be connected to terminals 1 and 2.
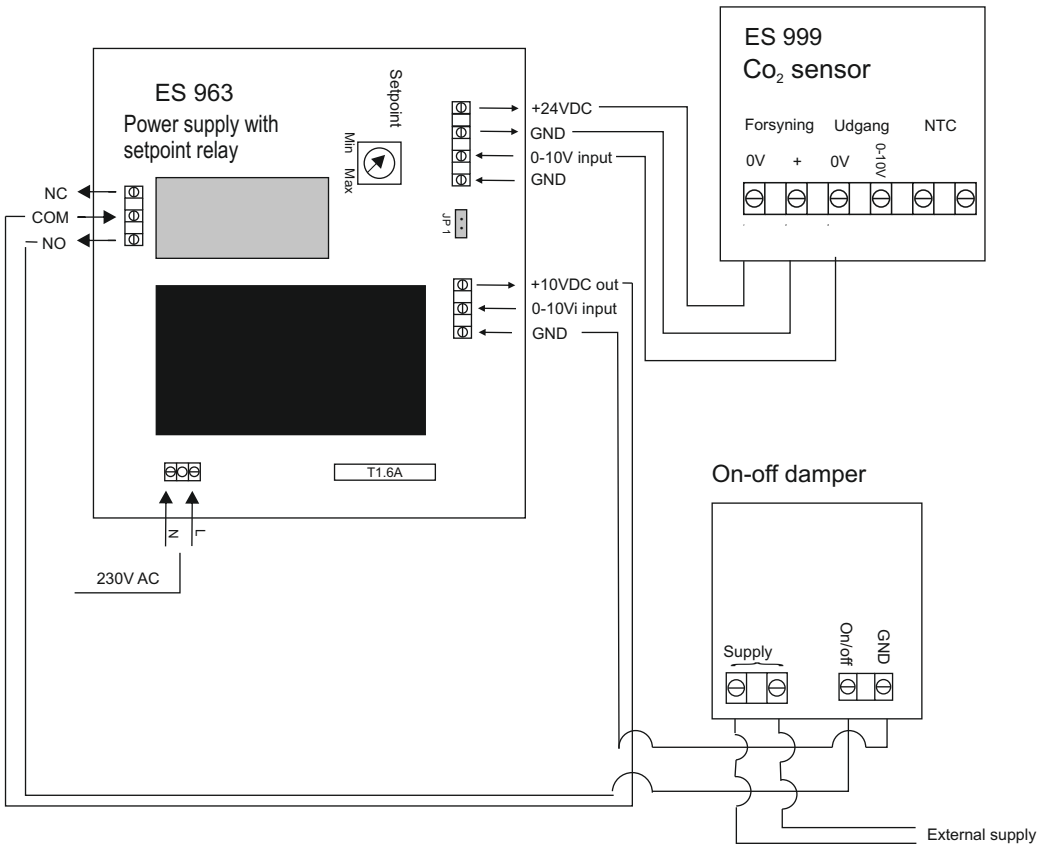For DC supply connect - to terminal 1 and + to terminal 2

CO_2 output:
The output signal is 0-10V where - is on terminal 3 and + is on terminal 4.

Temperature sensor: NTC sensor is on terminals 5 and 6.

Connection example with regulator and modulating damper:

ES 999
Co₂ sensor

Supply   Output   NTC

0V   +   0V   0-10V

13 14 15 16 17 18 19 20 21
V+ in GND GND V+ out RS 485B RS 485A NTC 1 GND NTC2

Power

Jumper

SD Card

ES 874
MultiController E Regulate

GND 22
24 23

1 2 3 4 5 6 7 8 9 10 11 12
0-10V out GND 0-10V out GND 0-10V in GND 0-10V in GND GND RX TX RTS

Modulating
damper

0-10V in

⊥ ~

0
24V AC/DC +
~

Connection example with on/off damper:

ES 963
Power supply with
setpoint relay

Setpoint
Min   Max

+24VDC
GND
0-10V input
GND

JP 1

NC
COM
NO

+10VDC out
0-10Vi input
GND

T1.6A

N   L

230V AC

ES 999
Co$_2$ sensor

Forsyning   Udgang   NTC

0V   +   0V   0-10V

On-off damper

Supply   On/off   GND

External supply

Technical data:

Supply power:	DC: 24V ±10% 3VA
	AC: 24V ±10% 6.4VA
Operating temperature:	0 - 50°C
Measuring range CO_2 sensor:	0 - 2000ppm
Accuracy CO_2 sensor:	±50ppm at 500ppm
CO_2 proportional output:	0 - 10V 15mA

Recommended minimum air velocity at measuring probe: 0.5 m/s

Enclosure:	IP 54 (box)
Dimensions (HxWxD) box:	120x122x55 mm
Incl sensor tube:	120x122x171mm (Sensor tube Ø18mm)

Maintenance free when used in households and offices.

WEEE

Electrical and electronic equipment contains material which may be hazardouz to human health and environment if it is not handled correctly at disposal. Electrical and electronic equipment is marked with a crossed-out wheelie bin logo. This logo symbolises that electrical and electronic equipment must not be disposed of together with normal household waste but must be collected separately.
Contact your local authorities for further information on disposal of equipment under the WEEE directive.

The product complies with the following standards:
EN 60730-1

Date:	07/09-2017
Drawing:	950-206376_CO2+NTCSensorBasic_kanal_ES 999_UK
Drawn by:	TJ / KM / df
Rev.:	1.2
Manufactured by:	LS Control A/S
	Industrivej 12, DK-4160 Herlufmagle

LSCONTROL