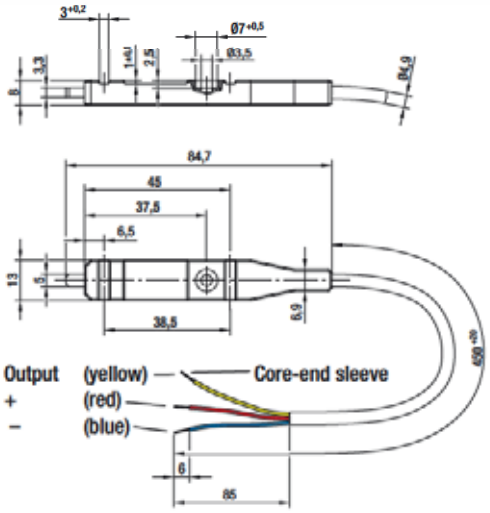
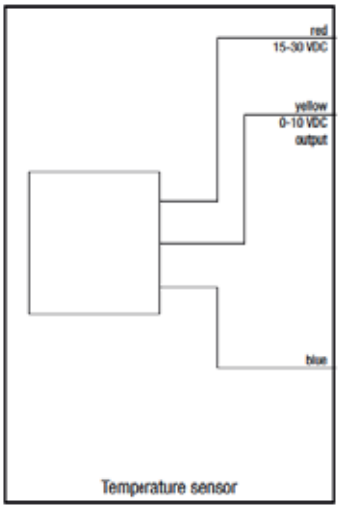
# Temperature sensor

| Nominal data | Nominal voltage | Current draw | Output voltage | Output current | Output impedance | Temperature measuring range | Mass |
|---|---|---|---|---|---|---|---|
| **Part no.** | **VDC** | **mA** | **VDC** | **mA** | **kΩ** | **°C** | **kg** |
| **50005-1-0174** | 15-30 | 10 | 0-10 | 1.0 | 1.1 | -20 to +80 | 0.02 |

subject to alterations




– **Electr. connection:**



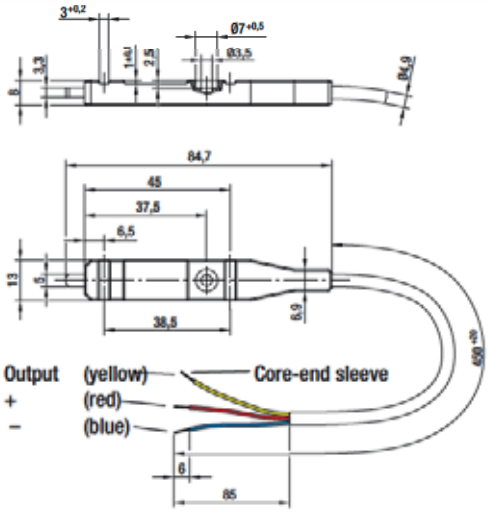

– **Output voltage depending on temperature:**


Tolerance ±3 K

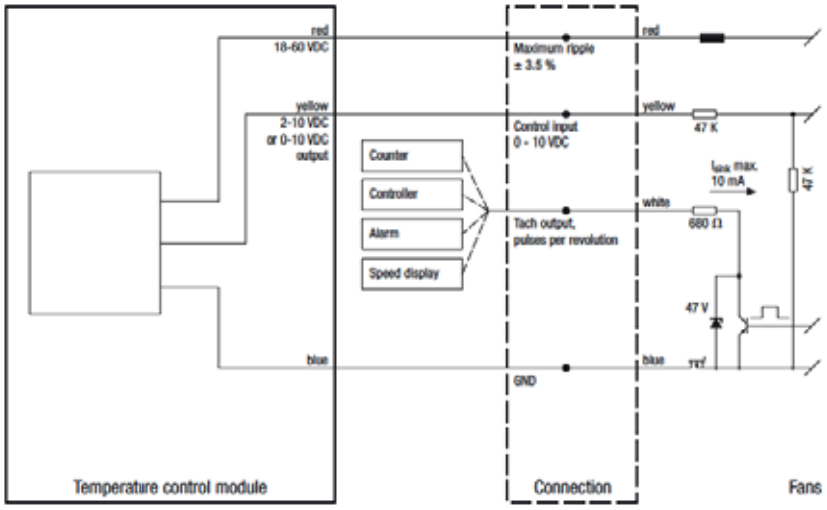
# Temperature control module

| Nominal data | Nominal voltage | Current draw | Output voltage | Output current | Output impedance | Temperature control range | Mass |
|---|---|---|---|---|---|---|---|
| Part no. | VDC | mA | VDC | mA | kΩ | °C | kg |
| 50002-1-0174 | 18-60 | 10 | 2-10 | 0.1 | 6.8 | +30 to +55 | 0.02 |
| 50003-1-0174 | 18-60 | 10 | 0-10 | 0.1 | 6.8 | +10 to +45 | 0.02 |

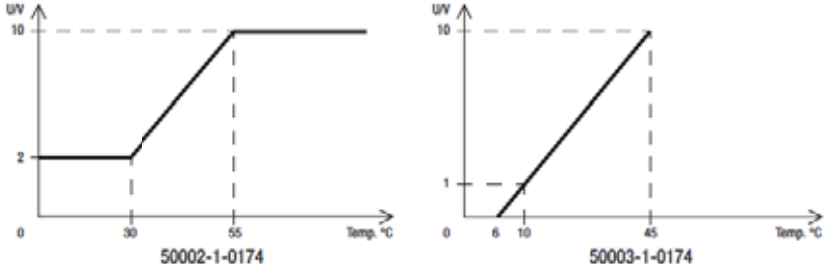
subject to alterations




– **Electr. connection:**




– **Control function:** Both designs have "cooling" as control function



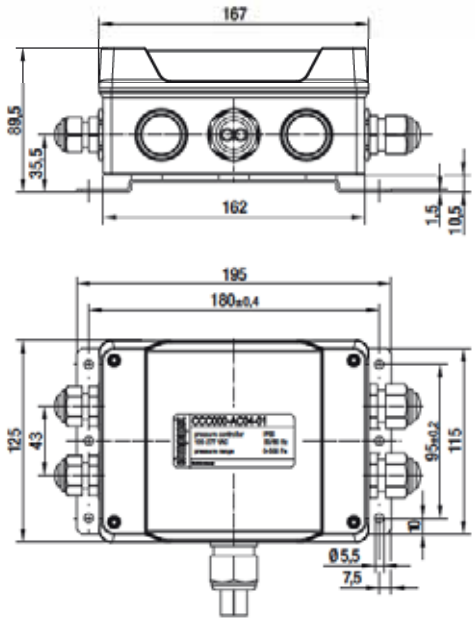

Tolerance ±3 K

# Pressure control with integrated pressure sensor

- **Functions:** Integrated PID controller, day/night/linear set point preset, integrated set point potentiometer for day and night, external set point preset via potentiometer
- **Pressure sensor:** 0-500 Pa, bursting strength 200 mbar, for non-aggressive gaseous media
- **Type of protection:** IP 55
- **Inlet nozzles:** Suitable inlet nozzles to determine airflow, see page 551

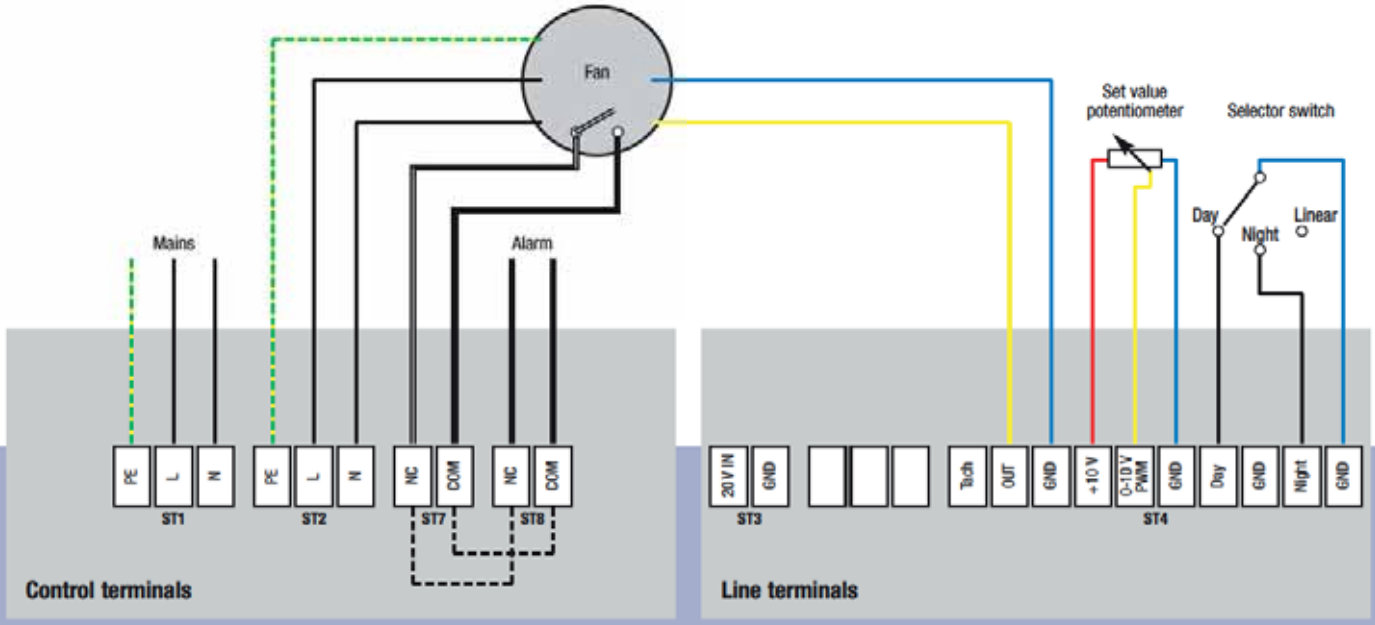
| Nominal data | Nominal voltage range | Frequency | Nominal voltage, alternative | Pressure control range | Perm. amb. temp. |
|---|---|---|---|---|---|
| **Type** | **VAC** | **Hz** | **VDC** | **Pa** | **°C** |
| **CCC 000-AC04 -01** | 1~ 100-277 | 50/60 | 20 @ 50 mA | 50-500 | -25 to +60 |

subject to alterations






ebmpapst




| Connector | Connection | Assignment / function |
|---|---|---|
| ST1 | PE | Protective earth |
| | L | Mains 50/60 Hz, phase |
| | N | Mains 50/60 Hz, neutral |
| ST2 | PE | Protective earth |
| | L | Mains 50/60 Hz, phase |
| | N | Mains 50/60 Hz, neutral |
| ST7 | NC | Relay contact for alarm, break for failure |
| | COM | Relay contact for alarm |
| ST8 | NC | Relay contact for alarm, break for failure |
| | COM | Relay contact for alarm |

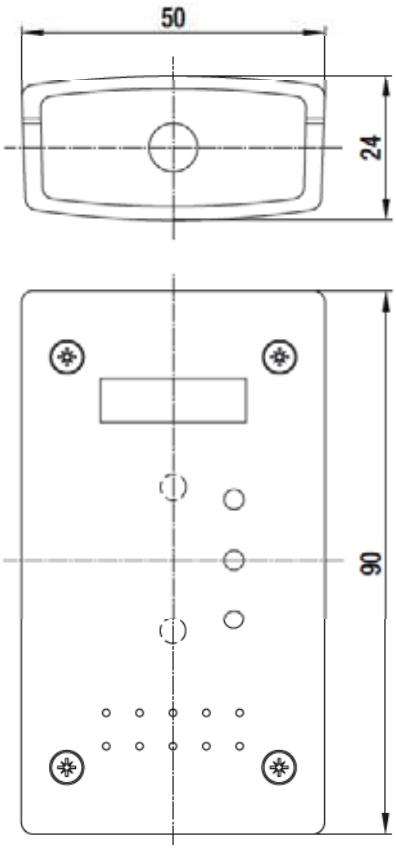
| Connector | Connection | Assignment / function |
|---|---|---|
| ST3 | 20 V IN | DC voltage supply (optional), with reverse polarity protection |
| | GND | GND |
| ST4 | Tach | Tach output from fan |
| | OUT | Control voltage for fan, 0-10 V |
| | GND | GND |
| | +10 V | Set value potentiometer, supply 10 V (-10 %), 10 mA |
| | 0-10 V PWM | Set value potentiometer |
| | GND | Set value potentiometer |
| | Day | Selector switch terminal |
| | GND | Selector switch terminal |
| | Night | Selector switch terminal |
| | GND | Selector switch terminal |

# Selection module for 3 speeds

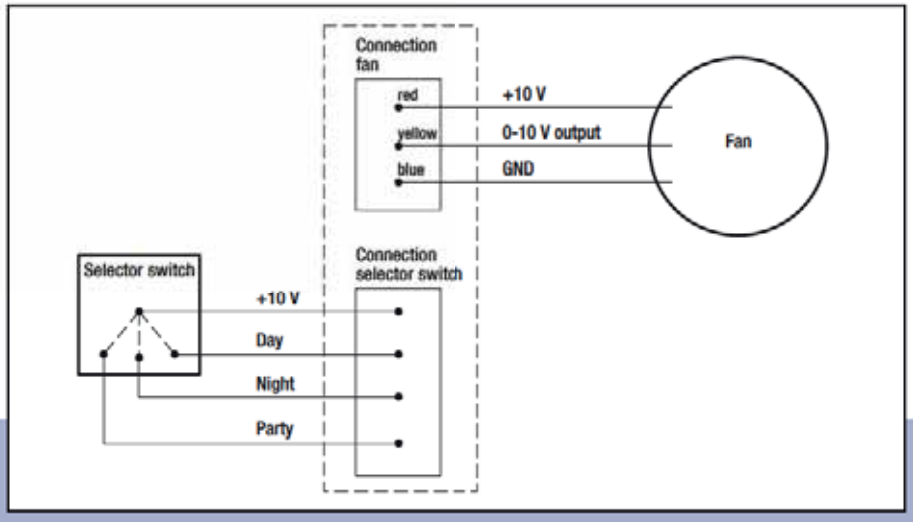

- **General remarks:** Using an external selector switch, one of three preset speeds can be chosen. Presetting is done via one integrated potentiometer each.
- **Material:** Plastics
- **Type of protection:** IP 20

| Type |
| --- |
| **CBC 000-AE04 -01** |

subject to alterations



– **Electr. connection:**

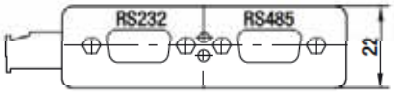


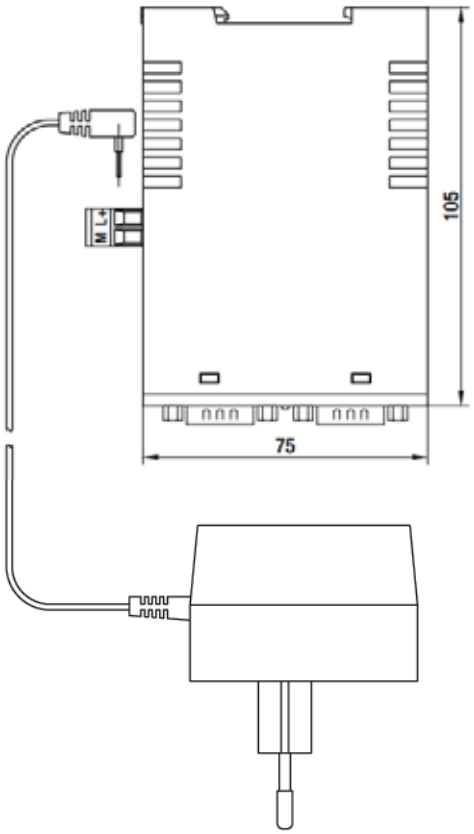
# Interface converter RS232 - RS485

- **General remarks:** This interface converter permits bi-directional connection of RS232 devices (laptop or PC) with ebmBUS devices (electronic commutation units with RS485 interface)
- **Safety:** Electrical insulation between the RS232 and RS485 side is provided
- **Material:** Plastic housing for standard rail mounting according to DIN EN 50022-35
- **Status display:** Via LEDs
  green: supply voltage OK
  red: data exchange

| Nominal data | | Nominal voltage power supply | Supply voltage | Current draw at no-load operation | Mass (incl. PS) |
|---|---|---|---|---|---|
| **Part no.** | | **VAC** | **VAC / VDC** | **mA** | **kg** |
| **21487-1-0174** | 1~ | 230 | 12-24 | 150 | 0.4 |

subject to alterations



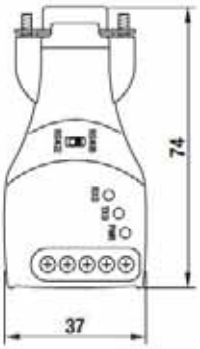

- **Mode of operation:** RS485 2-wire mode with echo and automatic control
- **Galvanic insulation:** Min. 1kV insulation voltage between RS232 and RS485 interfaces and between power supply and interfaces
- **ESD immunity:** Up to 15 kV (acc. to IEC 801-2, Stage 4)
- **Delivery scope:**
  - Interface converter
  - Plug-in supply unit (230 VAC / 12 VDC, 500 mA)
  - Adaptor leads with 2 x 9-pole SUB-D sockets
  - Adaptor leads with 9-pole SUB-D socket
  - Screw terminal RS485

# Interface converter RS232 - RS485

- **General remarks:** This interface converter permits bi-directional connection of RS232 devices (laptop / PDA) with ebmBUS devices (electronic commutation units with RS485 interface) Power supplied by RS232 of the laptop / PDA.
- **Material:** Plastic housing
- **Status display:** Via LEDs
  PWR: Power supply
  TXD: Data transfer (send)
  RXD: Data transfer (receive)

| Nominal data | Mass |
|---|---|
| Part no. | kg |
| 21495-2-0174 | 0.1 |

subject to alterations

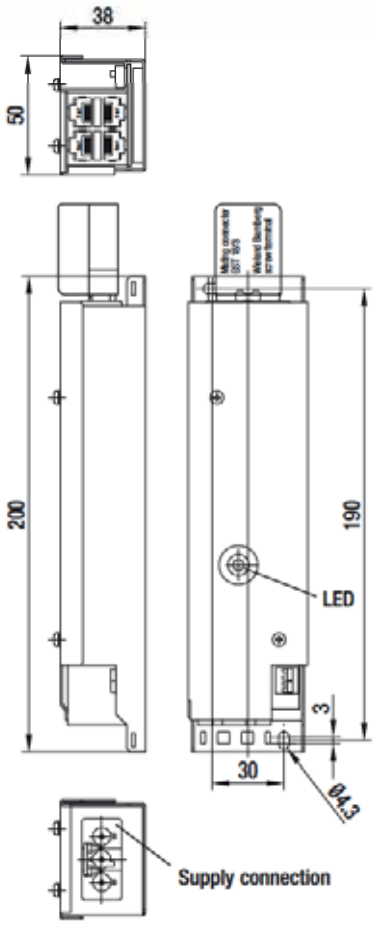

- **Mode of operation:** RS485 2-wire mode with echo and automatic control
- **Delivery scope:** Interface converter, English-language operating manual
- **Electrical terminals:** Screw terminal, TRX+ = RSA, TRX– = RSB

# RS485 repeater

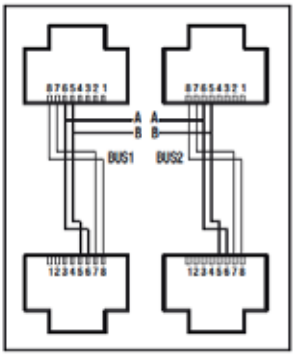
- **General remarks:** The physical RS485 repeater is used for the connection of two segments on an RS485 basis. It can split a segment with network bus wires that are too long, or with too many nodes into two smaller, standardised units. A maximum of 31 nodes can be connected to the repeater.
- **Installation:** The repeater housing is mounted on the wall or in the cable duct with two screws (Ø 4 mm) or with cable ties.
- **Material:** Housing made of galvanised sheet steel
- **Type of protection:** IP 20 according to DIN EN 60529

| Nominal data | Supply voltage | Frequency | Power input | Perm. operating temp. | Perm. storage temp. | Mass |
|---|---|---|---|---|---|---|
| Part no. | VAC | Hz | VA | °C | °C | kg |
| 25708-1-0174 | 1~ 200-277 | 50/60 | < 3 | 0 to +50 | -20 to +70 | 0.3 |

subject to alterations




- **Type of transceiver:** 2 x ANSI standard RS485 transceiver
- **Galvanic insulation:** Operating insulation 500 V between both channels
- **Network connection:** Screw terminals
- **Mains connection:** Wieland connector GST 18/3 (part of delivery)
- **Pin configuration of network:**




| Pin No. | Assignment / function |
|---|---|
| 1 - 4 | not assigned |
| 5 | Connection RS485, line B |
| 6 | Connection RS485, line B |
| 7, 8 | not assigned |
| | (each looped through within BUS1 and BUS2) |



ebmpapst

# RS485 terminal box with lead connections

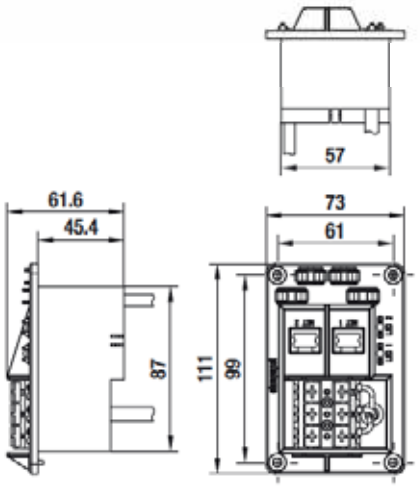
## for centrifugal fans with EC motor size 084 (ebmBUS, RS485)

- **General remarks:** RS485 terminal box with
  - 2x RJ45 socket for ebmBUS
  - ebmBUS lead with Molex Mini-Fit female connector to connect to motor
  - 3-pole 4-pin unit connector with AMP Mate-N-Lock female connector to connect to motor
  - Mode of operation display (LED2 green) and alarm display (LED1 red)
- **Delivery scope:**
  - Terminal box
  - Supply line (800 mm)
  - ebmBUS line (800 mm)
- **Material:** ABS (fire rating V0 according to UL)

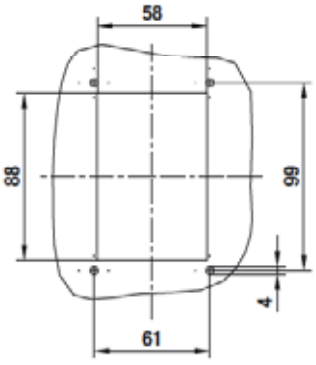
**Part no.**

**54002-4-1040**

subject to alterations




**Mounting dimensions**




- **Pin configuration of supply lead:**

| Colour | Assignment / function |
|---|---|
| green/yellow | PE |
| black 2 | N |
| black 1 | L |

- **Pin configuration of ebmBUS lead:**

| Colour | Assignment / function |
|---|---|
| yellow | RS A |
| white | RS B |
| red | Operation: +15 V Alarm: 0 V |
| blue | Operation: 0 V Alarm: +15 V |

- **Pin configuration of RJ45 sockets:**

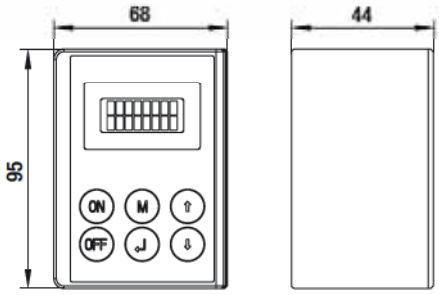
| Pin No. | Assignment / function |
|---|---|
| 5 | RS B |
| 6 | RS A |

# Hand-held control terminal


- **General remarks:** Terminal to control networked fans and to set their parameters; RS485 (ebmBUS)
- **Type of protection:** IP 20 (acc. to DIN EN 60529)
- **Protection class:** III
- **Display:** Plain text LCD, 2x8 characters
- **Accumulator and charging electronics:** 2 x round cell R6 DIN 40863 NiMH 1,500 mAh, operating time approx. 40 hrs, standby time approx. 100 days, charging time max. 4 hrs.
- **Parts included in delivery:** Hand-held control terminal, power supply and accumulator unit, BUS cable, 2 x round cell R6 NiMH 1,500 mAh

| Nominal data | Nominal voltage range power supply | Frequency | Supply voltage | Perm. amb. temp. | Perm. storage temp. | Mass |
|---|---|---|---|---|---|---|
| **Type** | **VAC** | **Hz** | **VDC** | **°C** | **°C** | **kg** |
| **CBC 000-AB06 -01** | 1~ 100-240 | 50/60 | 12 | 0 to +45 | -20 to +65 | 0.4 |

subject to alterations






ebmpapst

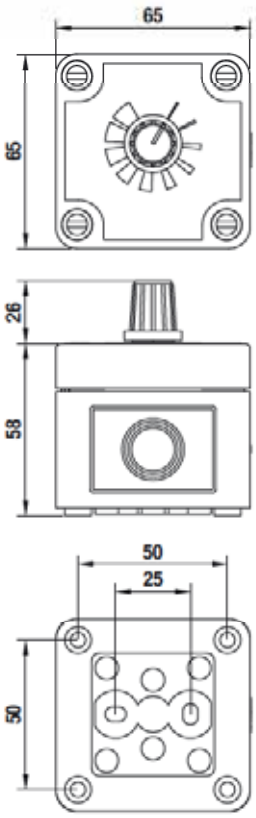
# Speed setting

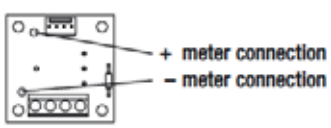
## with housing

- **Material:** Housing made of plastic
- **Type of protection:** IP 54
- **Design:** The speed setting can be operated with the entire range of ebm-papst EC fans. It is supplied with current via the fan's DC output and supplies a 0-10 V signal that allows infinitely variable open loop speed control. The control also permits fan speed measurement using a multimeter equipped with a frequency meter (for which a tach output is given from the fan).
- **Cable inputs:** 4 x M16 or M20
- **Mounting holes:** Suitable for 4 mm mounts

| Nominal data | Supply voltage | Max. current draw | Resistance | Perm. amb. temp. | Mass |
|---|---|---|---|---|---|
| **Type** | **VDC** | **mA** | **kΩ** | **°C** | **kg** |
| **CLC 000-AE04 -01** | 10 | 1.1 | 0-10 Lin | 50 | 0.10 |

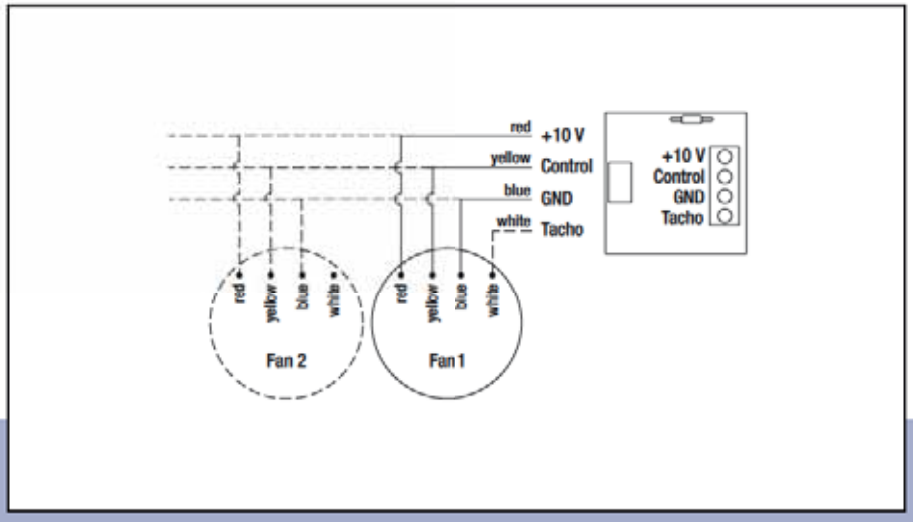
subject to alterations




- **Speed measurement:** Connect a frequency meter to the connection points (labelled + and -) on the PCB board. The fan outputs 1 pulse per revolution, so that the measured frequency can be converted into rpm using the following equation: rpm = frequency (Hz) x 60
- **Comment:**
  - A single controller can be used to control multiple fans with the same speed setting.
  - The connection to the controller is made using four screw connections or one Molex connection (adaptor lead available).
  - If the tach cable is required, this device can only be connected to a fan. Note that in rare operating cases, it is possible that permanent connection of the tach cable can cause a slight decrease in the maximum speed.

– **Electr. connection:**



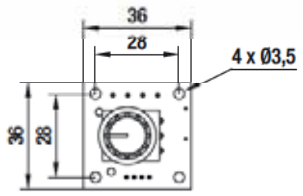
# Speed setting

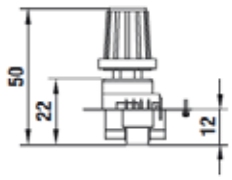
## without housing

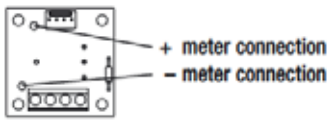
- **Design:** The speed setting can be operated with the entire range of ebm-papst EC fans. It is supplied with current via the fan's DC output and supplies a 0-10 V signal that allows infinitely variable open loop speed control. The control also permits fan speed measurement using a multimeter equipped with a frequency meter (for which a tach output is given from the fan).
- **Mounting hole:** 10 mm

| Nominal data | Supply voltage | Max. current draw | Resistance | Perm. amb. temp. | Mass |
|---|---|---|---|---|---|
| **Type** | **VDC** | **mA** | **kΩ** | **°C** | **kg** |
| **CLC 000-AD04 -01** | 10 | 1.1 | 0-10 Lin | 50 | 0.05 |

subject to alterations

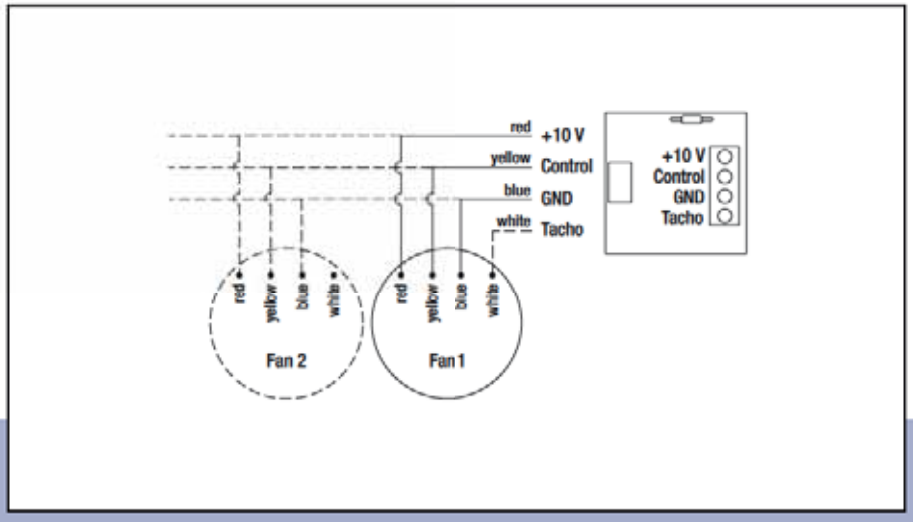



- **Speed measurement:** Connect a frequency meter to the connection points (labelled + and -) on the PCB board. The fan outputs 1 pulse per revolution, so that the measured frequency can be converted into rpm using the following equation: rpm = frequency (Hz) x 60
- **Comment:**
  - A single controller can be used to control multiple fans with the same speed setting.
  - The connection to the controller is made using four screw connections or one Molex connection (adaptor lead available).
  - If the tach cable is required, this device can only be connected to a fan. Note that in rare operating cases, it is possible that permanent connection of the tach cable can cause a slight decrease in the maximum speed.

– **Electr. connection:**



# LISA

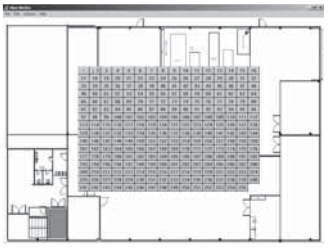
## Control software for EC-SYSTEMS

- **Version:** LISA 5.1
- **Features:**
  - Individual control and monitoring of max. 7,905 fans
  - Group-oriented arrangement of the fans
  - Level 1: Overview display for 10 floors
  - Level 2: Overview display for 255 groups within a floor
  - Level 3: Overview display for 31 fans within a group
  - Broadcast command for one group or all fans
  - Speed, temperature or pressure control
  - Error message

**Part no.**

**25711-2-0199**

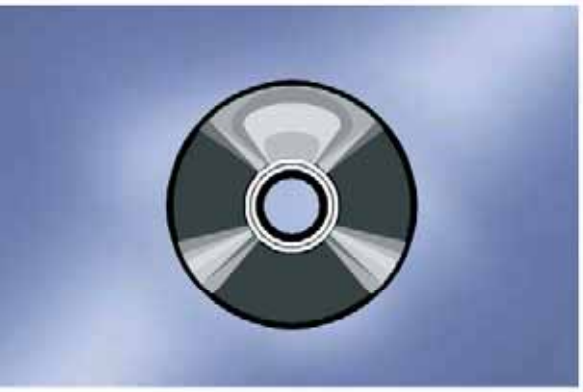
subject to alterations

- **Suitable for:** EC motors and electronics with ebmBUS
- **System requirements:** Windows 2000 / XP

# Fan Control

## Control software & accessories for Pocket PCs / PDAs



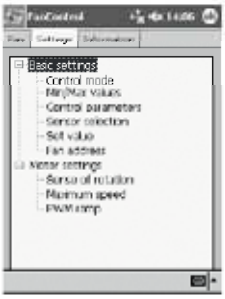
- **Version:** Fan Control 1.00
- **Features:**
  - Managing up to 31 fans
  - Setting pre-set values and indicating actual values
  - Setting parameters for PID control
  - Setting fan address
  - Setting mode of operation (heating/cooling)
  - Alarm diagnosis
  - Language selection for user interface

**Part no.**

**21500-1-0174**

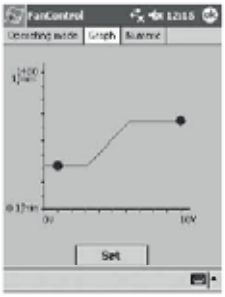
subject to alterations


Set and actual values




Mode of operation


Fan address




Graphic setting

- **Delivery scope:** Installation-CD, interface converter (RS232-RS485), BUS cable, installation instruction and detailed manual (PDF). The Pocket PC / PDA and compatible serial communication cables are not included in the scope of delivery.
- **Suitable for:** EC motors and electronics with ebmBUS
- **System requirements:** Pocket PC / PDA with Windows Mobile 5.0, RS232 interface, and serial communication cable.
- **Compatible Pocket PCs / PDAs:** (as of 2006-09-14)
  - Hewlett-Packard rx1950
  - Hewlett-Packard hx2190
  - Fujitsu-Siemens Pocket Loox C550
  - Dell Axim x51v (624 MHz)

  Refer to our website at www.ebmpapst.com/downloads for a continuously updated list of approved Pocket PCs / PDAs along with the suitable serial communication cables.