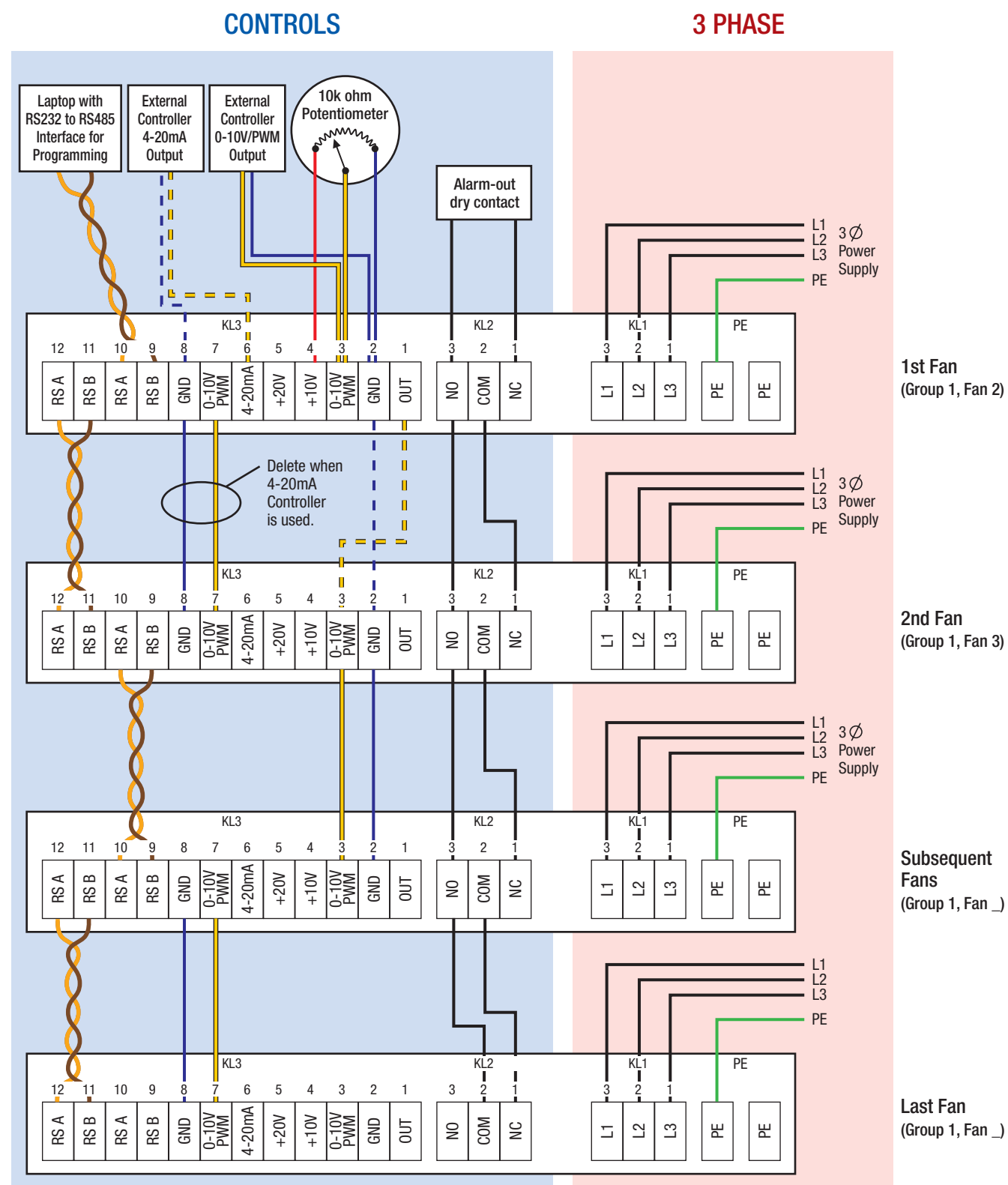


Control of Single or Multiple EC Fans from an External Controller or Potentiometer

EC WD 1

External Controller Connection Sequence

0-10V/PWM External Controller Output Signal



----- Wiring for the 4-20mA Controller
 The following KL3 terminals are paralleled: 3+7, 2+8, 9+11, 10+12.

Alarm Circuit
 Diagram depicts a “normally closed” circuit which opens on failure of any fan.
 NB. Contacts are held in position only when power is connected to motor.

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WARNING

Electricity is dangerous. Suitable electrical qualifications may be required to carry out the wiring.

Fans may start unexpectedly during this process. Ensure suitable safety precautions are in place before commencing.

General overview

- Object is to control the speed of all fans in response to a signal supplied from an external source. (External Controller or Potentiometer)
- The speed change is approximately linear from approximately 1 volt (10% PWM) to maximum speed 10 volts (100% PWM). Below approximately 1 Volt the fan is stationary.
- All fans are to operate in unison.
- The external controller is to supply the fans with a 0-10 Volt control voltage or PWM signal (Connected to terminals 2 & 3 or 7 & 8). The control signal is paralleled to all fans so that all fans receive the same control signal (Via terminals 2 & 3 or 7 & 8).
 Alternatively a 4 to 20mA signal can be connected to terminal 6 and 8. Terminals 1 and 2 are fed to terminals 2 and 3 of subsequent fan. [Parallel to all fans so that all fans receive the same control signal (Via terminals 2 & 3 or 7 & 8).]
- All fans operate at the same speed.
- All fans are programmed for “Open loop rpm (PWM) control”. (Via the LISA ebm bus)
- Programming and monitoring is via the RS485 ebmBUS.
- Connection of RS485 is via daisy chained twisted pair wires.

Set mode of operation

- Mode of operation is set via ebmBUS with PC/Laptop and RS232 to RS485 Interface-converter and LISA software.

Procedure

- Switch off mains power supply.
- Isolate the 1st fan from the control feed from the external controller or potentiometer.
- Connect ebmBUS-wiring to the 1st fan, check “A” and “B” polarity (This is critical). Only the 1st fan must be wired to ebmBUS at this time. Later the ebmBUS will be connected step by step to all fans.
- Check mains supply, especially the earth.

- Switch on mains supply to the fans. (The LISA ebmBus cannot talk to the fans without power)
- Select “Open Loop PWM Control” via LISA and laptop.
- Change fan’s address to “Group 1, Fan 2” via LISA and laptop (It is strongly recommended that no fan is addressed “Group 1 Fan 1”). This is to ensure that any future replacement fans, which are supplied factory set as “Group 1, Fan 1”, can be easily commissioned. It is not possible to talk, via the LISA program, if any fans that have the same address.
- Connect RS485 ebmBUS and program the 2nd fan:
 - Connect ebmBUS wiring from 1st to 2nd fan, (Terminals 11 & 12) check “A” and “B” polarity (This is critical).
 - Set operation mode to ‘Open Loop PWM control’ via LISA and laptop.
 - Change fan’s address to “Group1, Fan 3” via LISA and laptop.
- Connect RS485 ebmBUS and program 3rd fan:
 - Connect ebmBUS wiring to the 3rd fan.
 - Set operation mode to ‘Open Loop PWM control’ via LISA and laptop.
 - Change fan’s address to “Group 1, Fan 4” via LISA and laptop.
- Connect RS485 ebmBUS and program 4th fan:
 - Connect RS485 ebmBUS to the 4th fan.
 - Set operation mode to ‘Open Loop PWM control’ via LISA and laptop.
 - Change fan’s address to “Group 1, Fan 5” via LISA and laptop.
- Connect subsequent fans in the same vane, always ensuring a Fan No. is not duplicated.
- Connect external controller or potentiometer to the 1st fan.
- Test run the unit.

Commissioning of these fans requires previous training in the application and use of the ebm-papst LISA software program. Do not attempt to commission the fans without previous training.

A laptop computer suitably programmed to operate LISA via the RS232/RS485 ebmBus interface is required.

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