

The fans of the VRE...-EC-DR series were developed on the basis of the proven VRE series as a supplement to the variable-speed drives predominantly used for plastic radial fans in the combination of asynchronous motor and frequency converter (version with pressure control). All specifications and notes in the operating instructions "Radial fans VRE" also apply to the use and operation.

**Mains connection and controls**

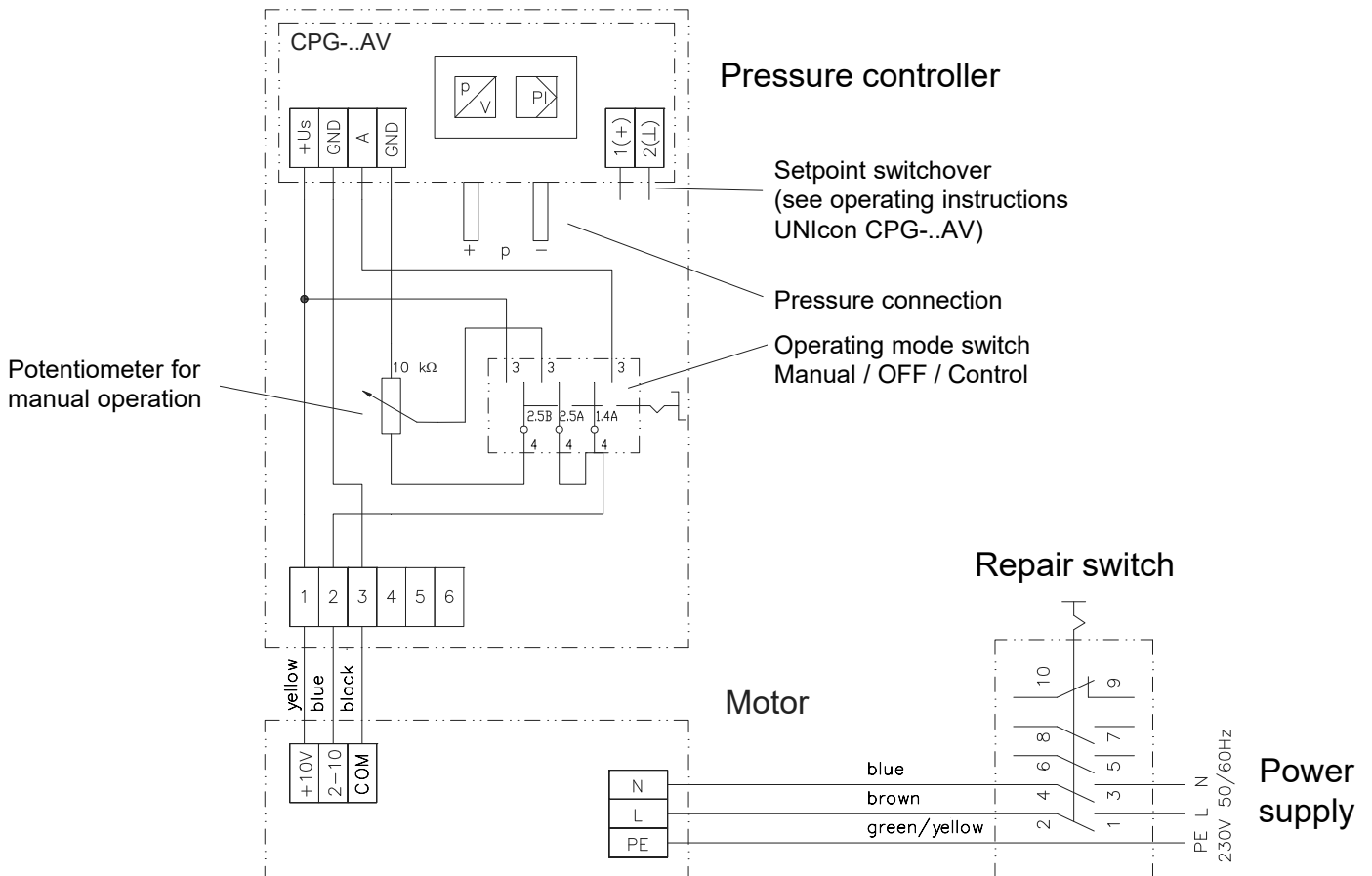
The entire control system, consisting of EC controller, regulator and motor protection, is integrated into the fan.

**When using the fan, it is essential to protect the control unit from the effects of the weather, such as rain, snow, etc.**

The power supply is connected in the repair switch. For cleaning and maintenance work, the fan is disconnected from the mains via the repair switch.

The operating mode switch and a potentiometer for manual operation are located on the controller. Further operating elements and the electrical connections are accessible after opening the controller housing.

**Warning notices for assembly:** The unit may only be connected and opened by qualified personnel. When programming, note that the unit is under voltage.



**Mains connection:** terminals L, N and PE on the repair switch

## 2. Pressure set point, preliminary remarks

The pressure setpoint must be determined according to ventilation aspects. A large negative pressure has the effect of:

- better stability of the system against disturbing pressures (wind influence),
- less influence of the individual pick-up points on each other,
- higher fan speed and thus higher noise level and increased power requirement,
- exhaust air valves must be throttled back more (this can cause disturbing noises).

## 3. Manual operation

In **Manual** mode, any speed between 0 and the nominal speed of the motor can be set via the potentiometer. Programming the controller is not necessary for this.

**Manual** mode is mainly used as an aid for commissioning and adjusting the system. In the event of technical problems with the pressure control, it can be used as an emergency mode.

## 4. Pressure control, menu structure, programming

Programming is done in three main menus (INFO, SETTING, BASESETUP). With the help of the three keys ▼ ▲ and P all parameters can be selected and changed/adjusted after pressing the P key (Escape = ▼+▲).

All controller functions are already pre-programmed at the factory (see Table 1) and commissioning is very simple: Start/stop switch in position "Auto" and the fan adjusts its speed automatically according to the measured pressure and regulates it to the programmed setpoint. When the housing of the pressure controller is open, the actual value can be read on the display of the controller.

During initial commissioning, a pressure adjustment is recommended (BASE SETUP / Autozero = ON; see section 5).

For commissioning, trial operation and uncontrolled operation, it is possible to control the fan speed via the integrated potentiometer in the "Manual" position of the start/stop switch. Continuous operation is also possible without restrictions in this case.

Possible changes may be required with regard to the target pressure (INFO / Setpoint 1 and SETTING / Setpoint1) and, associated with this, also with the measuring range (BASE SETUP / Range). In this case, the start/stop switch on the pressure regulator housing must be set to the "0" position and the regulator housing opened. Then, as described above, the settings in the corresponding menus can be made using the three buttons ▼ ▲ and P. All other settings should be retained, as they are specially adapted to the motor and pressure measuring system used.

All other settings should be retained, as these are specifically adapted to the motor and pressure measuring system used. If the system tends to oscillate or reacts too sluggishly in automatic mode, the reaction can be made more sluggish (higher values) or more sensitive (lower values) by changing the SETTING / Pband setting, the reaction can be made more sluggish (higher values) or more sensitive (lower values).

INFO		SETTING		BASE SETUP	
Parameter	default	Parameter	default	Parameter	default
$\Delta p$ / Pa	-	Setpoint 1 / Pa	250	Mode	4.01
Setpoint 1 / Pa	250	Setpoint 2 / Pa	-	Units	metric
Uout / V	9.9	Pband	200	Range / Pa	0 ... 500
UNIcon	Version	Min. Uout / V	2.1	Autozero	ON
		Max. Uout / V	10.0	Offset	0 Pa

## 5. Function test

The function test of the pressure control is carried out by interrupting the pressure measuring lines (pull off the hose connector at the controller). If the fan runs up slowly to its maximum speed, the control is functioning.

Otherwise, check the settings or the pressure sensor.

If the setpoint is not reached, there may be defects in the ventilation system (fan too small for the system, exhaust air elements poorly adjusted, duct system leaking or similar).

## 6. Pressure adjustment

The measured differential pressure depends on the installation position of the pressure transmitter (effect of gravity on the measuring diaphragm). For the standard installation position of the fan, the adjustment is already carried out at the factory. If required, the adjustment is carried out as follows:

- Apply differential pressure "0" to the load cell (interruption of the pressure measuring lines).
- Check actual pressure (should be between +2 and -2 Pa)
- If necessary, adjust via menu (BASE SETUP / Autozero = ON)