

External Control unit

CNC 017-AA01-01



- **Material:** Sheet steel, galvanised
- **Type of protection:** IP 00
- **Schutzklasse:** I
- **Protection class:** any
- **Touch current:** $\leq 3,5$ mA acc. to IEC 60990 (test circuit, illustration 4, TN System)
- **EMC:** Interference emission (to be assessed in the customer device)
Interference immunity acc. to EN 61000-6-2 (industrial environment)
Harmonics acc. to EN 61000-3-2/3

Nominal data

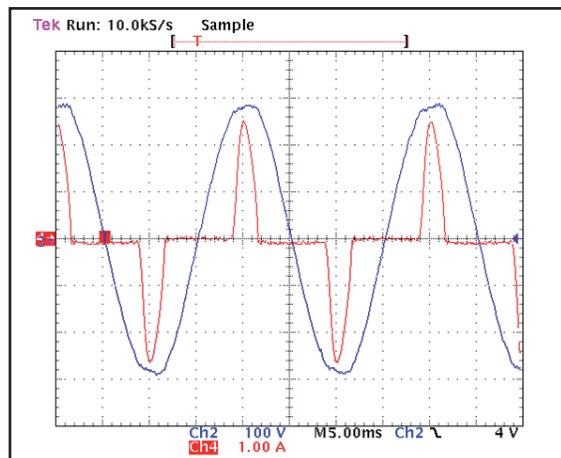
Type	Nominal voltage range	Frequency	Input power	Current draw	Min. amb. temp.	Max. amb. temp.	Output voltage	Output current	CosPhi	Mass
Type	VAC	Hz	W	A	°C	°C	VDC	A		kg
CNC 017-AA01-01 ⁽¹⁾	1~200-240	50/60	170	0,75	-25	45	380	0,45	0,99	0,6

subject to alterations

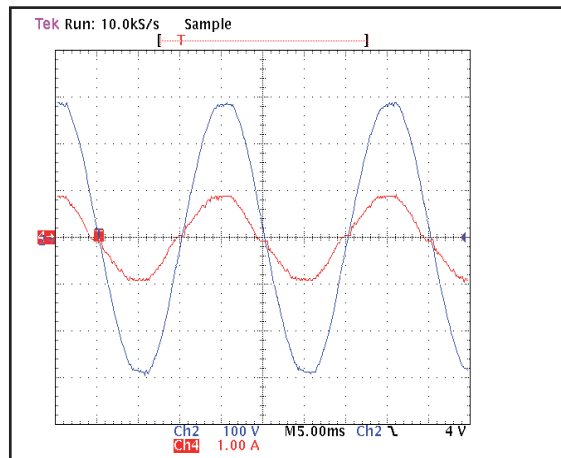
(1) The external control unit CNC 017-AA01-01 is only to be operated in conjunction with ebm-papst fans specially designed for this purpose !

Example for Power Factor Correction (PFC):

Without active PFC (pulsed current): Power factor $\lambda = 0,53$



With active PFC (sinusoidal current): Power factor $\lambda = 0,99$



The pulsed input current of EC fans gives rise to current harmonics, which additionally increases the load on the supply network and causes greater losses as a result of reactive power.

With parallel operation of EC fans this can lead to the permissible limit values as per EN 61000-3-2 being exceeded and have a negative effect on other devices in the system network.

Active „Power Factor Correction“ (active PFC) converts the pulsed input current to a sinusoidal current. In the second stage the current is in-phased with the voltage. The harmonic content of the input current can thus be considerably reduced.

The peak value of the input current is also minimised and it may be possible to select a smaller cross-section for the fan supply lines depending on the application.

The two illustrations show the same motor/fan impeller combination at the same operating point (identical air performance setting). The illustration on the left shows system operation without PFC, the diagram on the right operation with active PFC.

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Active PFC

Our newly developed electronics with active power factor correction offer numerous advantages in the power range up to 170 W:

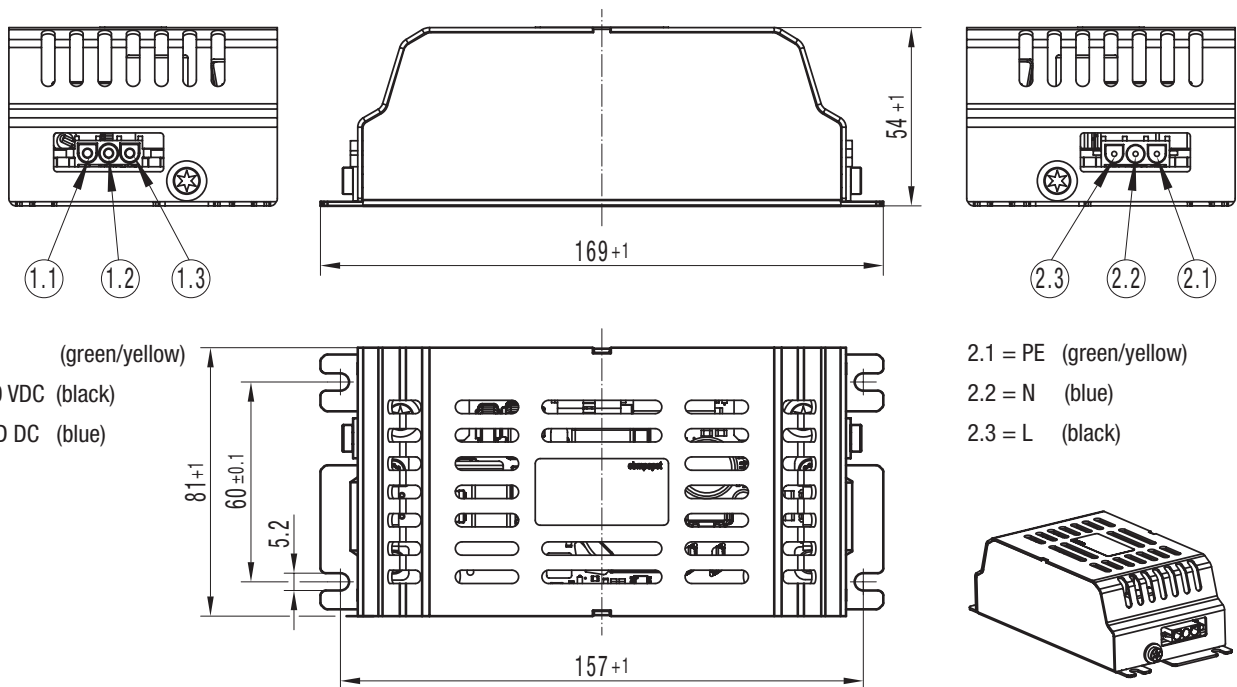
- Filtering of harmonic interference and attainment of power factors of up to $\lambda = 0,99$.
- Up to 50% reduction in current peaks.
- Parallel connection of several EC fans is not a problem.
- Active PFC is simply connected upstream of EC fans with single-phase supply.

It is however important to remember that:

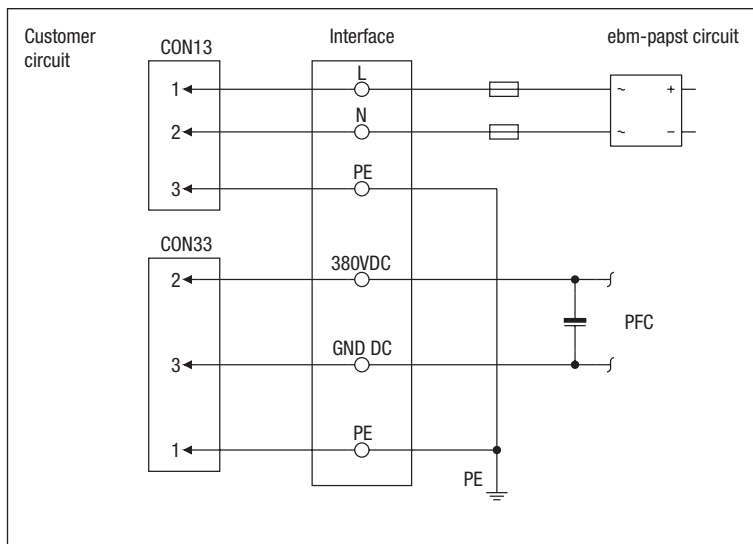
- The fan motors must be appropriately designed for the use of external active PFC.
- Retrofitting is not always possible for existing fans.



Technical drawing:



Electrical connection:



Plug	No.	Connection	Assignment / function
CON13	1	L	Voltage supply 230 VAC, 50-60 Hz, voltage range see type plate
CON13	2	N	GND connection
CON13	3	PE	Protective earth
CON33	2	380 VDC	380 VDC output fan
CON33	3	GND DC	GND output fan
CON33	1	PE	Protective earth output fan