TECHNICAL SPECIFICATION

EC Backward-Curved Centrifugal Fan

GL-B280B-EC-05

Party	Prepared by	Reviewed by	Approved by
Blauberg	Li Xiawei		
Customer			

16 December 2024

This English edition is a clean translation of the original technical specification.

REVISION HISTORY

Revision	Issue date	Prepared by	Status	Description
V00	16.12.2024	Li Xiawei	Initial issue	—

RATED DATA

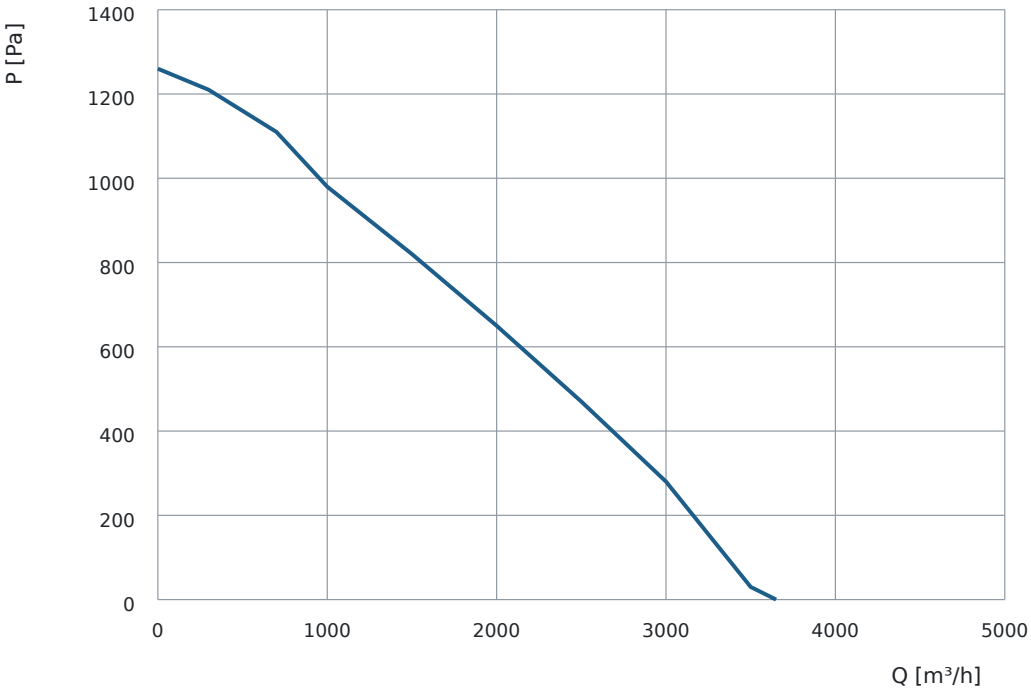
Model	GL-B280B-EC-05
Motor	EC102AC230V750W-35
Phase	1~
Rated voltage	230 VAC
Rated voltage range	184–276 VAC
Frequency	50/60 Hz
Data type	FA
Speed	3150 ±5% RPM
Maximum input power	650 W
Maximum input current	2.9 A
Sound level	85 dB(A)
Minimum ambient temperature	-25 °C
Maximum ambient temperature	+60 °C

Data condition: ML = maximum load; ME = maximum efficiency; FA = operation at free air.

TECHNICAL PARAMETERS

Weight	—
Packaging	—
Overall dimensions (L × W × H)	400 × 400 × 274 mm
Motor frame size	102
Impeller material	Metal
Number of blades	8
Airflow direction	Radial / all around
Direction of rotation	Clockwise (viewed from rotor side)
Rotor surface treatment	Blue powder coating
Rotor housing	Deep-drawn
Degree of protection	IP55
Insulation class	Class F
Minimum storage / transport temperature	-40 °C
Maximum storage / transport temperature	+80 °C
Operating humidity	5–90% RH
Storage humidity	5–95% RH
Mounting position	Any
Cooling holes / openings	None
Duty type	S1
Motor bearing system	Ball bearings
Technical features	10 VDC output, maximum current 10 mA 0–10 VDC / PWM control input; maximum PWM input voltage 10 VDC PFC power-factor correction; RS-485 MODBUS-RTU Locked-rotor, thermal, overvoltage, undervoltage and overcurrent protection Soft start
Screw strength class	8.8
Cable length	500 ±20 mm
Safety class	Class I (when the protective-earth point is connected by the customer)
Dielectric strength	1800 VAC, 50 Hz for 1 s; leakage current ≤10 mA; no breakdown or flashover
Leakage current at operating temperature (IEC 60990)	≤3.5 mA
Standards / certifications	CCC, CE, RoHS

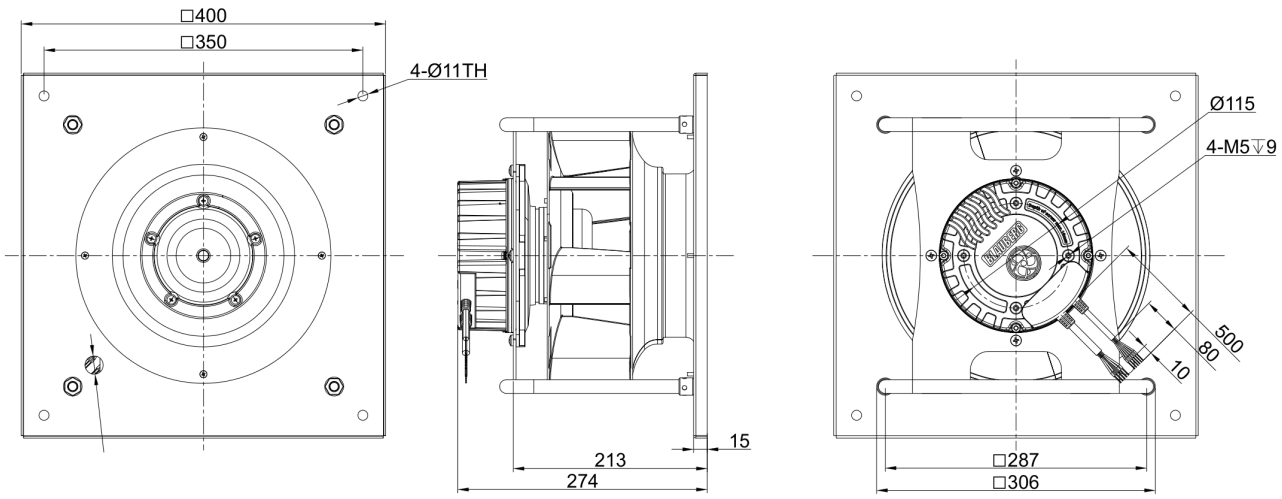
PERFORMANCE CURVE



Air performance is measured in accordance with AMCA 210 and GB/T 1236. Contact Blauberg for details of the measurement setup. The stated values apply under the specified test conditions and may vary with the installation. Where the installed configuration differs from the standard arrangement, verify the parameters on the installed equipment.

Curve axes: Static pressure P in pascals versus airflow Q in cubic metres per hour.

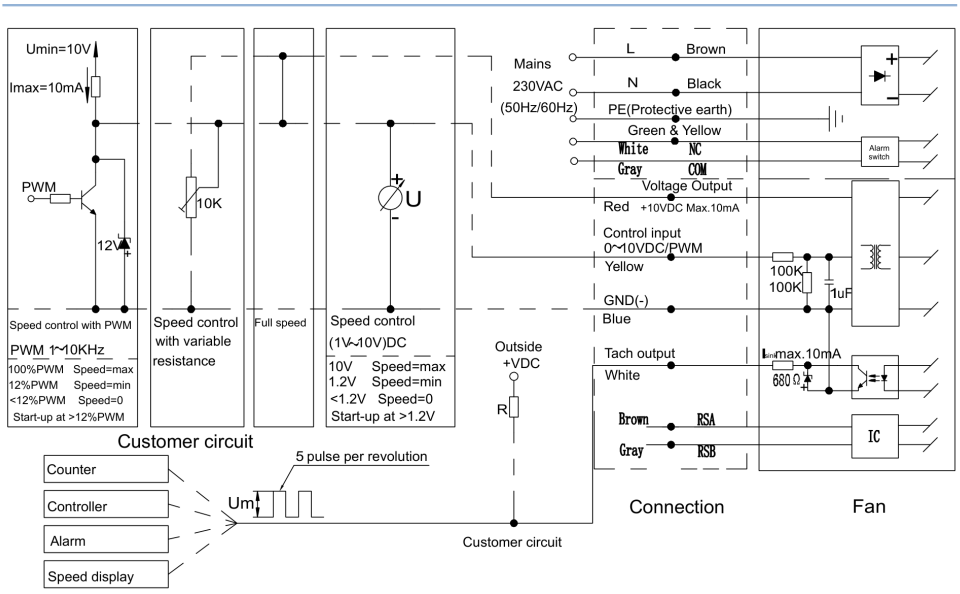
OUTLINE DRAWING



Ø20 CABLE ENTRY

1	Optional: inlet ring
2	Maximum thread depth for M5 holes: 9 mm; M6 holes are through-holes
3	AC connection cable: PVC, 5 × AWG18
4	DC connection cable: PVC, 6 × AWG22

WIRING DIAGRAM



Cable	Wire	Terminal	Colour	Function / assignment
Power	—	PE	Yellow/green	Protective earth
Power	U1	L	Brown	Mains connection; supply phase (live); voltage range as stated on the nameplate
Power	U2	N	Black	Mains connection; neutral; voltage range as stated on the nameplate
Power	U3	NC	White	Status relay, contact A; normally closed, opens on fault; 250 VAC / 2 A contact rating
Power	U4	COM	Grey	Status relay, contact B; common; 250 VAC / 2 A; isolated from mains and control interface
Control	U5	RSA	Brown	RS-485 interface for MODBUS, RSA
Control	U6	RSB	Grey	RS-485 interface for MODBUS, RSB
Control	U7	Speed control	Yellow	0–10 V / PWM control input; recommended PWM amplitude 10 V; SELV
Control	U8	Signal output	White	Speed monitor output; 5 pulses/revolution (custom pulse count or RD signal available); SELV
Control	U9	+10 V	Red	Fixed output 10 VDC ±5%, Imax 10 mA, for external devices such as potentiometers; SELV
Control	U10	GND	Blue	Reference ground potential for the control interface; SELV

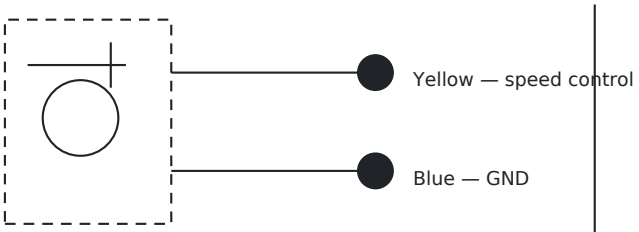
FAN SPEED CONTROL SETTINGS

1. Full-speed operation



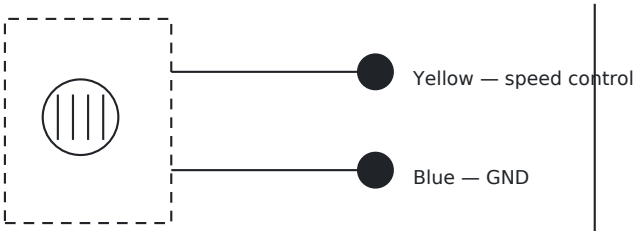
Bridge the red and yellow conductors.
The fan will run at full speed.

2. 0–10 VDC speed-control input (±0.2 V)



Use a DC source adjustable over 0–10 VDC.
Fan starts above 1.0 VDC.
Fan stops below 0.5 VDC.
Start voltage must exceed 1.0 VDC.

3. PWM control: 1–10 kHz, recommended amplitude 10 V, duty cycle 0–100% (±2%)



Recommended amplitude: 10 VDC (±5%).
Frequency: 1–10 kHz.
Fan starts above 10% duty cycle.
Fan stops below 5% duty cycle.

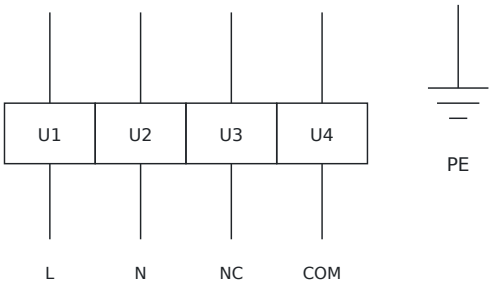
4. Potentiometer speed control



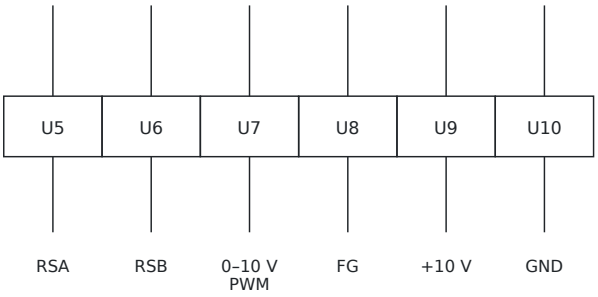
Use a 10 kΩ potentiometer.
Fan starts above 1.0 VDC.
Fan stops below 0.5 VDC.
Start voltage must exceed 1.0 VDC.

CONNECTION LABELS

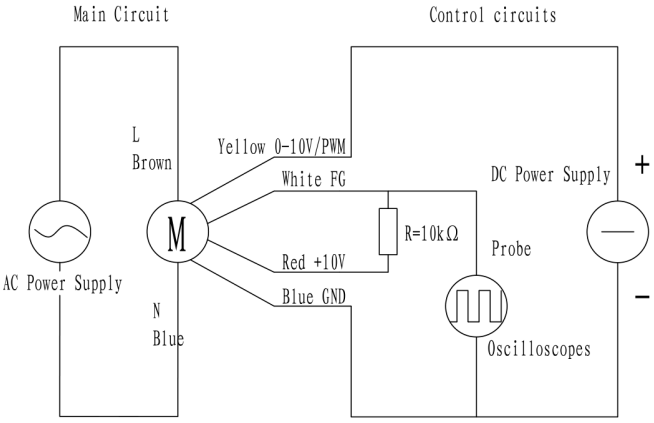
POWER CABLE



CONTROL CABLE

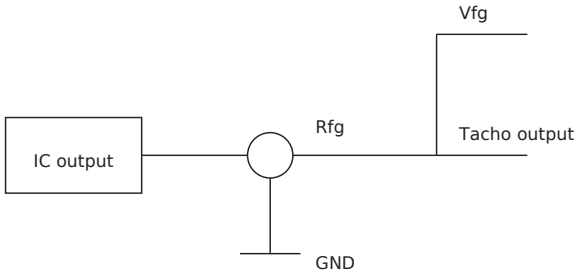


SPEED-FEEDBACK CONNECTION



The fan provides a speed-output signal. The pull-up supply and resistor are supplied by the customer.

Vfg = 3–30 VDC
Rfg ≥ 1000 × Vfg Ω



SPEED CALCULATION

Formula	n = 60f / a
n	Fan speed (RPM)
a	Number of output pulses per revolution
f	Output-signal waveform frequency (Hz)

SAFETY AND USE PRECAUTIONS

1. Connect the power and control conductors strictly in accordance with the wiring diagram to prevent fan damage.

2. Do not connect the white signal conductor directly to the red signal conductor or to an external DC power supply.

3. The yellow conductor may be connected directly to the red conductor (red/yellow bridge). This is equivalent to applying a fixed 10 VDC control signal and commands full-speed operation.

4. If the fan does not operate after power-up, check the speed-control input voltage and all connections. Prevent injury from unexpected start-up. Do not touch the impeller or rotor while power is applied.

5. The fan may require several seconds to start after energization. Do not touch the impeller or rotor while energized or running at low speed.

6. Before energizing, verify that the motor is securely installed; otherwise motor damage or personal injury may result.

7. Do not pull the power cable. If the cable is damaged, it must be replaced by the manufacturer to avoid electric shock.

8. Do not drop or strike the motor.

9. Do not wash the motor. Water may impair insulation and cause leakage current or personal injury.

10. For customised products or use outside the agreed operating conditions, consult Blauberg and obtain confirmation before use.

11. After the fan stops, the motor housing may remain hot for a short time. Avoid direct contact and provide burn protection where necessary.

12. During installation, inspect the housing and surrounding enclosure and remove any foreign objects.

13. After installation and before energization, rotate the rotor by hand and verify that there is no collision, interference or binding.

14. The motor is an integral part of the fan and must not be operated separately without the impeller or load.

15. If continued storage is required after opening the packaging, repack the product. Store at -40 °C to +80 °C and ≤95% RH in a clean, ventilated warehouse, free of corrosive gas and at least 15 cm above the floor.

16. Install the fan where children cannot reach it. Children must not use this product.

17. Blauberg reserves the right of final interpretation of this specification.

SERVICE LIFE, MAINTENANCE AND WARRANTY

1. The design life is 50,000 hours, limited by the rated life of the ball bearings at 40 °C. Actual service life varies with ambient temperature, humidity, mounting arrangement and fan load.

2. Cleaning and maintenance are recommended every 3–6 months, depending on the operating environment.

3. The complete fan is warranted for two years from the purchase date (the order delivery date). During this period, failures or damage caused by product-quality defects will be repaired or replaced free of charge. Damage caused by improper disassembly, handling, deliberate damage, natural disaster or other force majeure is excluded.