

EG1R240500A ebmpapst Datasheet

sales@fansco.com

www.fansco.com

Nominal Data

Model	EG1R240500A	
Motor	M3G150-FF	
Phase		3~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200-240
Frequency	Hz	50/60
Method of obtaining data		ml
Speed	rpm	1930
Power consumption	W	3911
Current draw	A	10.4
Min. ambient temp	°F (°C)	-40 (-40)
Max. ambient temp	°F (°C)	104 (40)

ml = Max. load (maximum fan input power over the range cataloged)
Subject to change

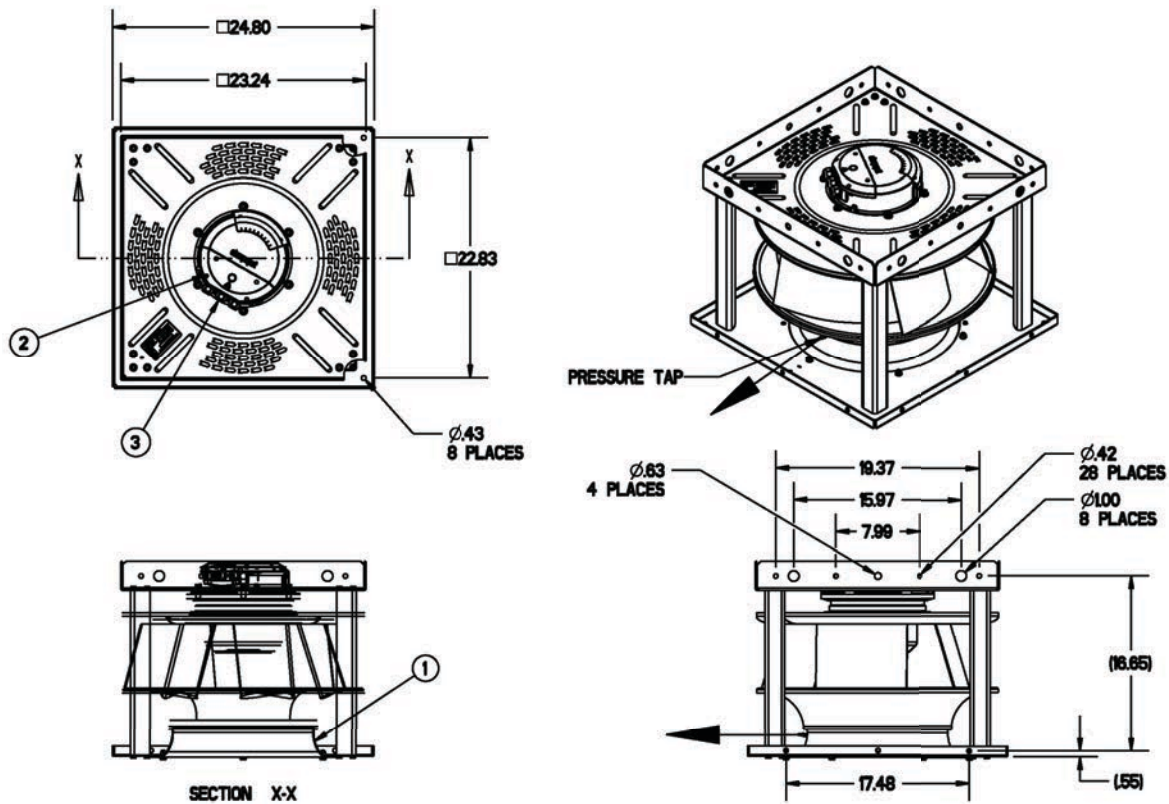
Speed (rpm) shown is nominal.
Performance is based on actual speed of test.

Technical Description

Weight	110 lb (49.9 kg)
Nominal Impeller Size	19.7 in (500 mm)
Motor size	150
Rotor surface	Painted black
Impeller Material	Sheet aluminum
Support plate material	Sheet steel, galvanized
Inlet plate material	Sheet steel, galvanized
Inlet nozzle material	Sheet steel, galvanized
Number of blades	5
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	F
Environmental class	H1
Ambient temp. note	Occasional startup between -40 °F & -13 °F (-40 °C & -25 °C) is permitted. For continuous operation below -13 °F (-25 °C), use a fan design with special low-temp bearings.
Max. ambient temp.	176 °F (+80 °C) (for motor transport/storage)
Min. ambient temp.	-40 °F (-40 °C) (for motor transport/storage)
Installation position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensation drain holes	On rotor side
Mode	S1
Motor bearing	Ball bearings
Technical features	<ul style="list-style-type: none"> - Operation and alarm display with LED - External 15-50 VDC input (parameterization) - Alarm relay - Integrated PI controller - Configurable inputs/outputs (I/O) - MODBUS V6 - Motor current limitation - RFID - ISO 15693 compatible - RS-485 MODBUS-RTU - Soft start - Voltage output 3.3-24 VDC, Pmax = 800 mW - Control interface with SELV potential safely disconnected from the mains - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
Touch current	≤ 3.5 mA (according to IEC60990; measuring circuit Fig.4, TN system)
Electrical hookup	Terminal box
Motor protection	Electronic motor protection
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approvals	UL 1004-7 + 60730-1; EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1

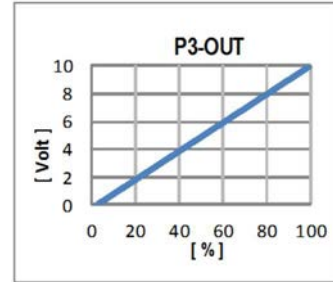
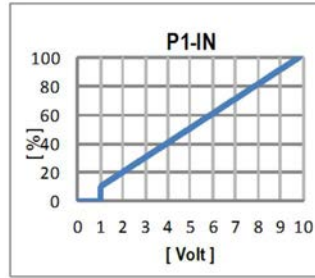
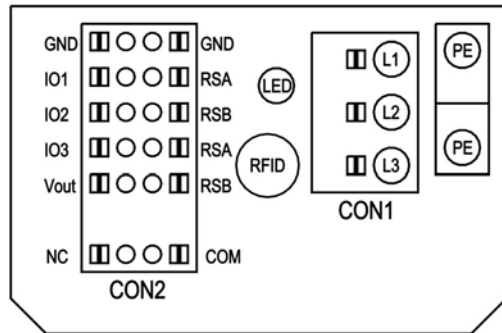
Product drawing

Dimensions in inches



1	Inlet ring with pressure tap K-factor (m^3/h & Pa): 281 (available on some variations)
2	Terminal cover tightening torque: 13.2 ± 1.7 in-lbs (1.5 ± 0.2 Nm)
3	Cable diameter: 0.15-0.39 in (4-10 mm) Cable gland tightening torque: 35.4 ± 5.3 in-lbs (4 ± 0.6 Nm) Please contact ebm-papst if conduit is required
	In a shaft horizontal orientation, the cable glands need to be located at the bottom and the cables must always be routed downwards
	Accessory part: Inlet finger guard p/n 79500-2-4039 (available on some variations)
	Accessory part: FlowGrid p/n 35506-2-2957 (not included in scope of delivery)

Electrical Interface



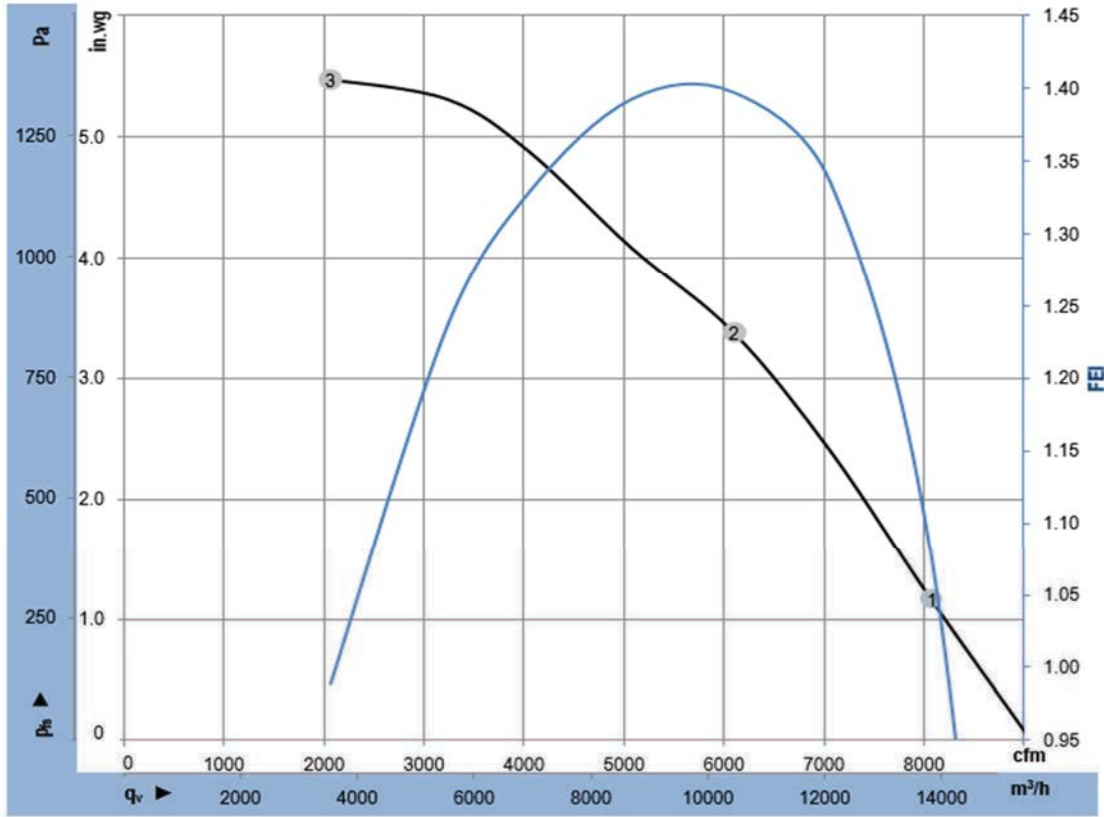
No.	Conn.	Desig.	Function/ Assignment
	CON1	L1,L2,L3	Power supply, phase, see nameplate for voltage range
	PE	PE	Protective earth
	CON2	RSA	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	Reference ground for control interface, SELV
	CON2	IO1	Function parameterizable (see "Optional interface functions" table) Factory setting: Digital input - high active, function: Disable input, SELV - inactive: Pin open or applied voltage < 1.5 VDC - active: applied voltage 3.5-50 VDC Reset function: Triggering of error reset on change of state from "enabled" to "disabled"
	CON2	IO2	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog input 0-10 V / PWM, Ri=100 kΩ, function: Set value Characteristic curve parameterizable (see input characteristic curve P1-IN), SELV
	CON2	IO3	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog output 0-10 V, max. 5 mA, function: Fan modulation level Characteristic curve parameterizable (see output characteristic curve P3-OUT), SELV
	CON2	Vout	Voltage output 3.3-24 VDC ±5%, Pmax=800 mW, voltage parameterizable Factory setting: 10 VDC short-circuit-proof, supply for external devices, SELV alternatively: 15-50 VDC input for parameterization via MODBUS without line voltage
	CON2	COM	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) / min. 10 mA, reinforced insulation on supply side and on control interface side
	CON2	NC	Status relay, floating status contact, break for failure
		LED	green: status = good, ready for operation orange: status = warning red: status = failure
		P1-IN	Input characteristic curve
		P3-OUT	Output characteristic curve

Terminal assignment

CON2	configurable IO mode	electrical specification	configurable IO functions: normal / Inverse	MODBUS Register for IO mode configuration	INPUT	OUTPUT		
IO1	<ul style="list-style-type: none"> Din1 (active high): digital input Ain1 0-10V/PWM: analog input Tach out (open collector output) Diagnostics out (open collector output) 	active: applied voltage 3,5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC Ri = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV U _{max} = 50VDC, I _{max} = 20mA, SELV U _{max} = 50VDC, I _{max} = 20mA, SELV	D158 [0] D158 [2] D158 [5] D158 [6]	signal: tach out (selected directly via IO mode) signal: diagnostics out (selected directly via IO mode) signal: fan modulation level % signal: actual speed signal: system modulation level % signal: remote control output 0-10V pulse input for auto-addressing pulse output for auto-addressing	D101 [...] source: set value D147 [...] source: sensor value D104 [...] switch: parameter set: #1 / #2 D12E [...] switch: control function: heating (pos.) cooling (neg.) D148 [...] switch: direction of rotation: cw / ccw D16C [...] switch: set value source D16A [...] switch: fan enable / disable	D130 [...] signal: fan modulation level % D130 [1] signal: actual speed D130 [2] signal: system modulation level % D130 [5] signal: remote control output 0-10V D00C [1] pulse input for auto-addressing D130 [4] pulse output for auto-addressing		
	IO2	<ul style="list-style-type: none"> Din2 (active high): digital input Ain2 0-10V/PWM: analog input Ain2 4-20mA: analog input 	active: applied voltage 3,5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC Ri = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV Ri = 125R, characteristic curve parameterizable, SELV	D159 [0] D159 [2] D159 [3]			source: set value source: sensor value switch: parameter set: #1 / #2 switch: control function: heating (pos.) cooling (neg.) switch: direction of rotation: cw / ccw switch: set value source switch: fan enable / disable	signal: tach out (selected directly via IO mode) signal: diagnostics out (selected directly via IO mode) signal: fan modulation level % signal: actual speed signal: system modulation level % signal: remote control output 0-10V pulse input for auto-addressing pulse output for auto-addressing
		IO3	<ul style="list-style-type: none"> Din3 (active high): digital input Din3 (active low): digital input PWMIn3: digital input (idle level high) PWMIn3: digital input (idle level low) Aout3 0-10V: analog output Tacho out (pulses), analog output Diagnostics out (pulses) 	active: applied voltage 3,5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC active: applied voltage < 1,5VDC, SELV not active: pin open or applied voltage 3,5-50VDC PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3,5-50VDC not active: applied voltage < 1,5VDC, SELV 40Hz - 10KHz, characteristics parameterizable active: applied voltage 3,5-50VDC not active: pin open or applied voltage < 1,5VDC, SELV function parameterizable, max. 5mA max output frequency 300Hz, SELV 0-10V max. 5mA, max output frequency 300Hz, SELV 0-10V max. 5mA, max output frequency 300Hz, SELV				
	RSA RSB		RS485 bus connection,	MODBUS RTU, specification V6.3, SELV			D15A [0] D15A [1] D15A [7] D15A [8]	source: set value source: sensor value switch: parameter set: #1 / #2 switch: control function: heating (pos.) cooling (neg.) switch: direction of rotation: cw / ccw switch: set value source switch: fan enable / disable
Vout			voltage output alternatively: input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	voltage parameterizable 3.3...24VDC +/- 5%, P _{max} =800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...]	source: set value source: sensor value switch: parameter set: #1 / #2 switch: control function: heating (pos.) cooling (neg.) switch: direction of rotation: cw / ccw switch: set value source switch: fan enable / disable	signal: tach out (selected directly via IO mode) signal: diagnostics out (selected directly via IO mode) signal: fan modulation level % signal: actual speed signal: system modulation level % signal: remote control output 0-10V pulse input for auto-addressing pulse output for auto-addressing	

o configurable option

For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.3



$\rho = 0.075 \text{ lbm/ft}^3$

Measurement: LU-1987

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Performance Ratings

		U	f	n	P _{ed}	I	q _v	p _{is}	FEI
		V	Hz	rpm	W	A	cfm	in. wg	
1	3~	230	60	1936	2825	7.6	8085	1.2	1.07
2	3~	230	60	1934	3911	10.4	6102	3.4	1.40
3	3~	230	60	1936	3215	8.6	2068	5.5	0.99

U = Supply voltage · f = Frequency · n = Speed · P_{ed} = Electrical power · I = Current draw · q_v = Air flow · p_{is} = Pressure increase

Performance certified is for installation type A - Free inlet, Free outlet.
 Rating Method "E" (Direct Drive, As Run Speed)
 Performance ratings include the effects of support brackets.