

EG1R240310A ebmpapst Datasheet  
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## Nominal Data

Model	EG1R240310A	
Motor	M3G112-GA	
Phase		3~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200-240
Frequency	Hz	50/60
Method of obtaining data		ml
Speed	rpm	3955
Power consumption	W	3159
Current draw	A	8.4
Min. ambient temp	°F (°C)	-40 (-40)
Max. ambient temp	°F (°C)	104 (40)

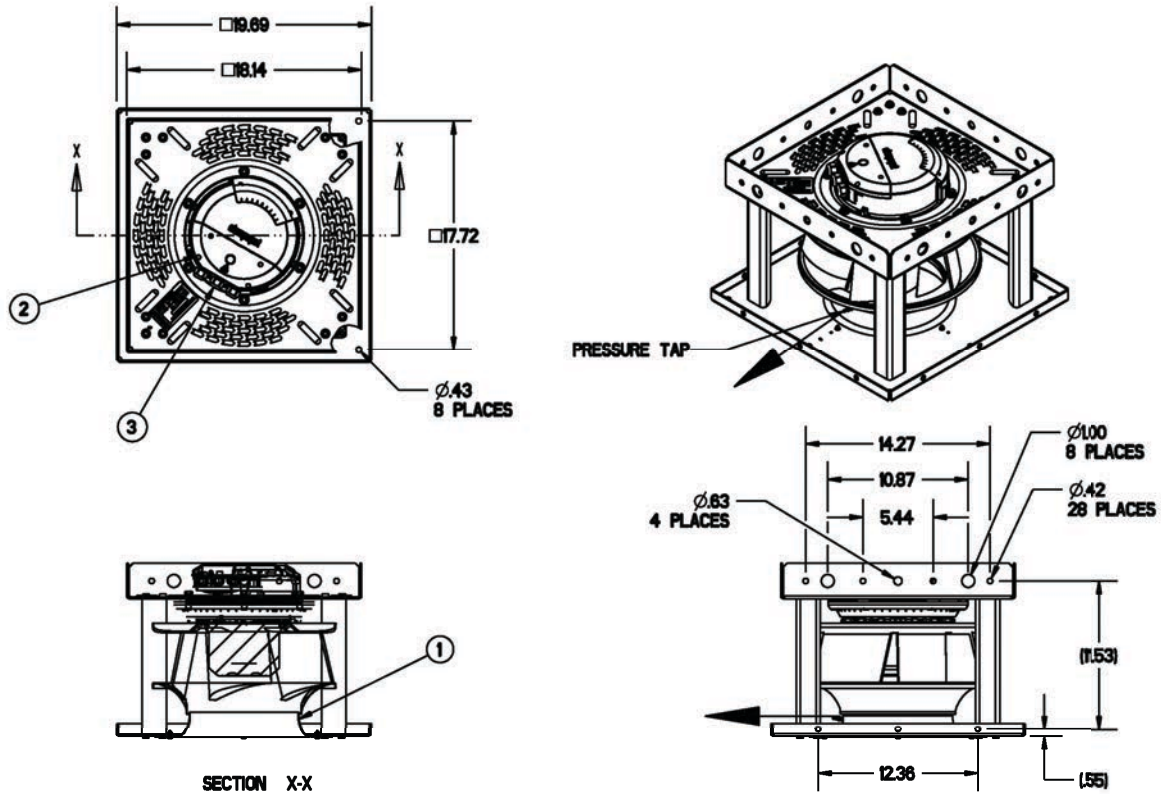
ml = Max. load (maximum fan input power over the range cataloged)  
Subject to change

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

Technical Description	
Weight	61 lb (27.7 kg)
Nominal Impeller Size	12.2 in (310 mm)
Motor size	112
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"> <li>- Operation and alarm display with LED</li> <li>- External 15-50 VDC input (parameterization)</li> <li>- Alarm relay</li> <li>- Integrated PI controller</li> <li>- Configurable inputs/outputs (I/O)</li> <li>- MODBUS V6</li> <li>- Motor current limitation</li> <li>- RFID - ISO 15693 compatible</li> <li>- RS-485 MODBUS-RTU</li> <li>- Soft start</li> <li>- Voltage output 3.3-24 VDC, Pmax = 800 mW</li> <li>- Control interface with SELV potential safely disconnected from the mains</li> <li>- Thermal overload protection for electronics/motor</li> <li>- Line undervoltage / phase failure detection</li> </ul>
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC interference emission	According to EN 61000-6-3 (household environment)
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

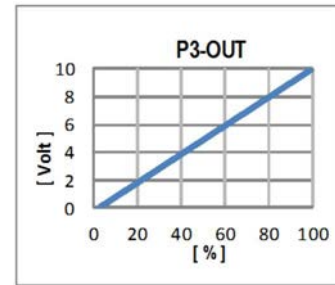
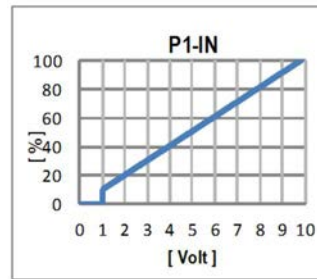
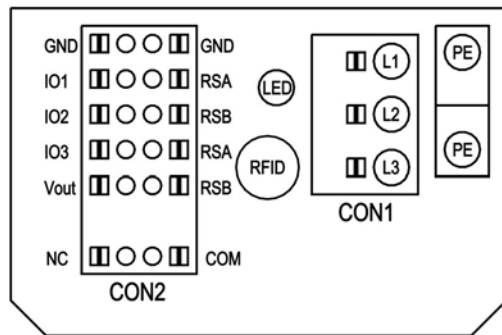
## Product drawing

Dimensions in inches



1	Inlet ring with pressure tap K-factor (m <sup>3</sup> /h & Pa): 116 (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 79310-2-4039 (available on some variations)
	Accessory part: FlowGrid p/n 25311-2-2957 (not included in scope of delivery)

## Electrical Interface



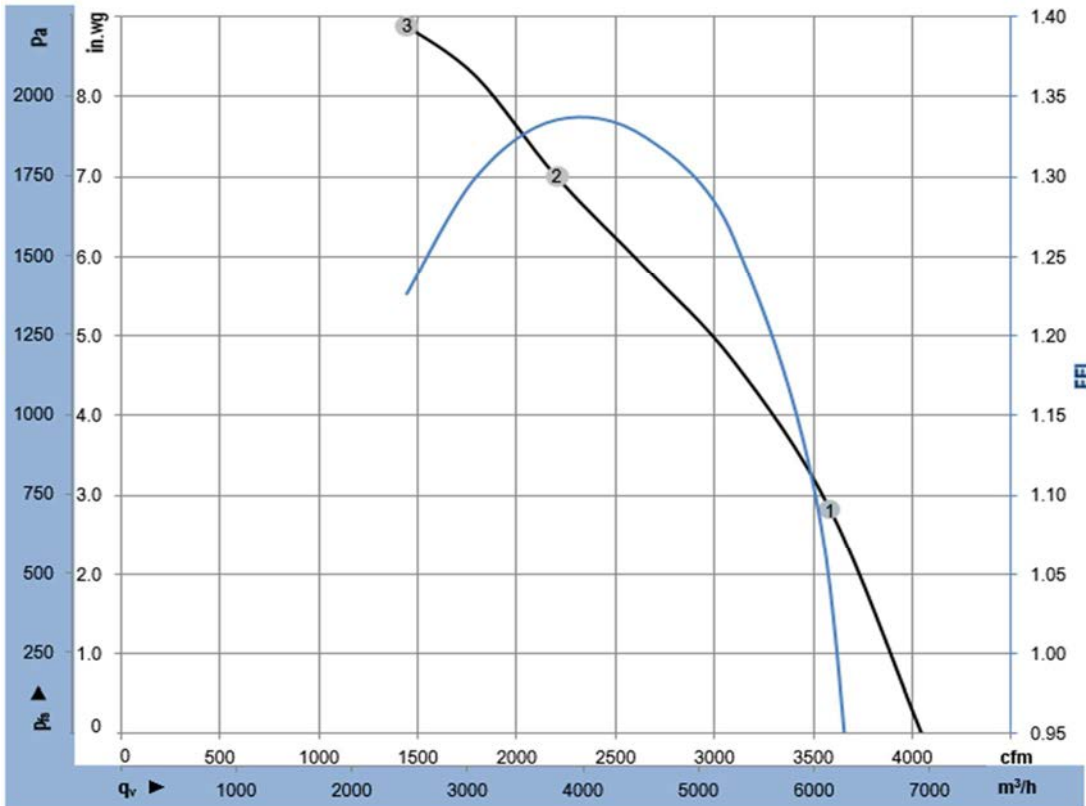
No.	Conn.	Desig.	Function/ Assignment
	CON1	L1,L2,L3	Power supply, phase, see nameplate for voltage range
	PE	PE	Protective earth
	CON2	RSA	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	Reference ground for control interface, SELV
	CON2	IO1	Function parameterizable (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 VDC / 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 VDC, 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		
IO1	<ul style="list-style-type: none"> <li>Din1 (active high): digital input</li> <li>Ain1 0-10V/PWM: analog input</li> <li>Tach out (open collector output)</li> <li>Diagnostics out (open collector output)</li> </ul>	<p><b>electrical specification</b></p> <p>active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage &lt; 1.5VDC</p> <p>Ri = 100K, characteristic curve parameterizable, <math>f_{PWM} = 1k..10kHz</math>, SELV Umax = 50VDC, Imax = 20mA, SELV Umax = 50VDC, Imax = 20mA, SELV</p> <p>active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage &lt; 1.5VDC</p> <p>Ri = 100K, characteristic curve parameterizable, <math>f_{PWM} = 1k..10kHz</math>, SELV Ri = 125R, characteristic curve parameterizable, SELV</p> <p>active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage &lt; 1.5VDC</p> <p>active: applied voltage &lt; 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC</p> <p>PWM = 40Hz - 10kHz, characteristics parameterizable active: pin open or applied voltage &lt; 1.5VDC, SELV not active: applied voltage &lt; 1.5VDC, SELV</p> <p>40Hz - 10kHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage &lt; 1.5VDC, SELV</p> <p>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</p> <p>MODBUS RTU, specification V6.3, SELV</p> <p>voltage parameterizable 3.3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC</p>	<p>MODBUS Register for IO mode configuration</p> <p>D158 [0]</p> <p>D158 [2]</p> <p>D158 [5]</p> <p>D158 [6]</p> <p>D159 [0]</p> <p>D159 [2]</p> <p>D159 [3]</p> <p>D15A [0]</p> <p>D15A [1]</p> <p>D15A [7]</p> <p>D15A [8]</p> <p>D15A [4]</p> <p>D15A [5]</p> <p>D15A [6]</p>		
	IO2			<ul style="list-style-type: none"> <li>Din2 (active high): digital input</li> <li>Ain2 0-10V/PWM: analog input</li> <li>Ain2 4-20mA: analog input</li> </ul>	<p>active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage &lt; 1.5VDC</p> <p>Ri = 100K, characteristic curve parameterizable, <math>f_{PWM} = 1k..10kHz</math>, SELV Ri = 125R, characteristic curve parameterizable, SELV</p> <p>active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage &lt; 1.5VDC</p> <p>active: applied voltage &lt; 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC</p>
				<ul style="list-style-type: none"> <li>Din3 (active high): digital input</li> <li>Din3 (active low): digital input</li> </ul>	
	IO3			<ul style="list-style-type: none"> <li>PWMIn3: digital input idle level high</li> <li>PWMIn3: digital input idle level low</li> </ul>	<p>PWM = 40Hz - 10kHz, characteristics parameterizable active: pin open or applied voltage &lt; 1.5VDC, SELV not active: applied voltage &lt; 1.5VDC, SELV</p> <p>40Hz - 10kHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage &lt; 1.5VDC, SELV</p>
<ul style="list-style-type: none"> <li>Aout3 0-10V: analog output</li> <li>Tacho out (pulses), analog output</li> <li>Diagnostics out (pulses)</li> </ul>		<p>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</p>	<p>D15A [4]</p> <p>D15A [5]</p> <p>D15A [6]</p>		
<ul style="list-style-type: none"> <li>RS485 bus connection,</li> </ul>				<p>MODBUS RTU, specification V6.3, SELV</p>	
<ul style="list-style-type: none"> <li>Vout</li> </ul>	<p>voltage parameterizable 3.3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC</p> <p>alternatively: input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage</p>				<p>D16E [...]</p>

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-1839

ebm-papst Inc. certifies that the RadiPac - Modular EC Plenum Fan shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.



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	4002	2786	7.4	3586	2.8	1.04
2	3~	230	60	3905	3132	8.4	2203	7.0	1.34
3	3~	230	60	4001	2981	7.9	1448	8.9	1.23

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.