

EG1R480450A ebmpapst Datasheet
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Nominal Data

| | | |
|--------------------------|-------------|-----------|
| Model | EG1R480450A | |
| Motor | M3G150-FF | |
| Phase | | 3~ |
| Nominal voltage | VAC | 460 |
| Nominal voltage range | VAC | 400-480 |
| Frequency | Hz | 50/60 |
| Method of obtaining data | | ml |
| Speed | rpm | 2440 |
| Power consumption | W | 4607 |
| Current draw | A | 6.2 |
| Min. ambient temp | °F (°C) | -40 (-40) |
| Max. ambient temp | °F (°C) | 104 (40) |

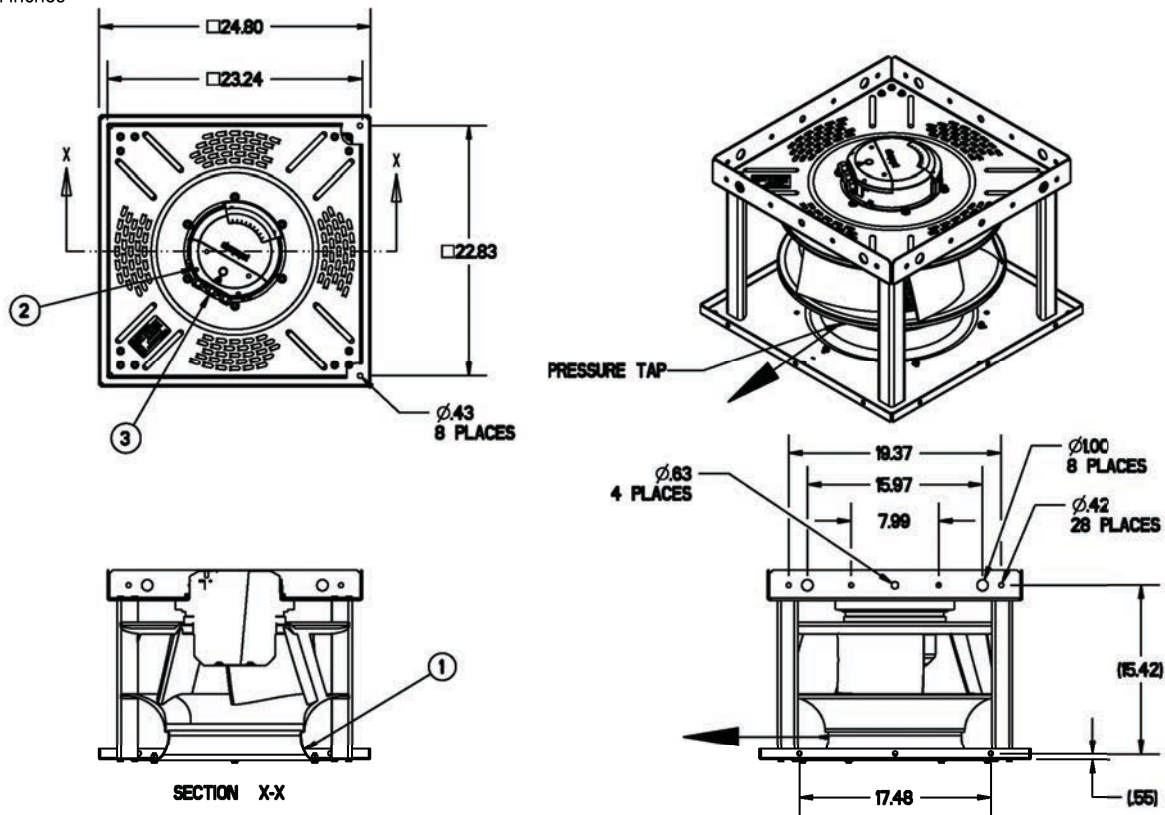
ml = Max. load (maximum fan input power over the range cataloged)
 Subject to change

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

| Technical Description | |
|------------------------------|--|
| Weight | 99 lb (45 kg) |
| Nominal Impeller Size | 17.7 in (450 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 |
| 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 |

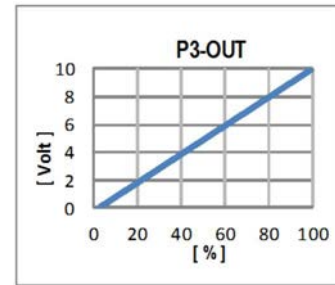
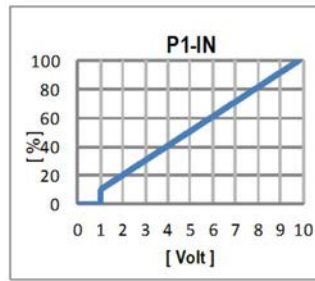
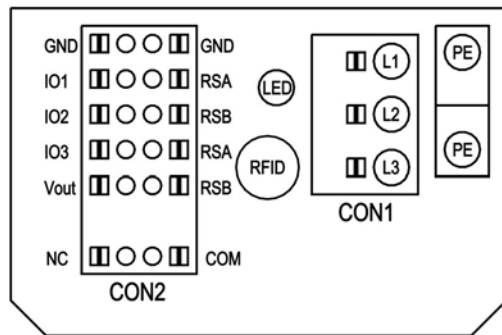
Product drawing

Dimensions in inches



| | |
|---|---|
| 1 | Inlet ring with pressure tap K-factor (m^3/h & Pa): 240 (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



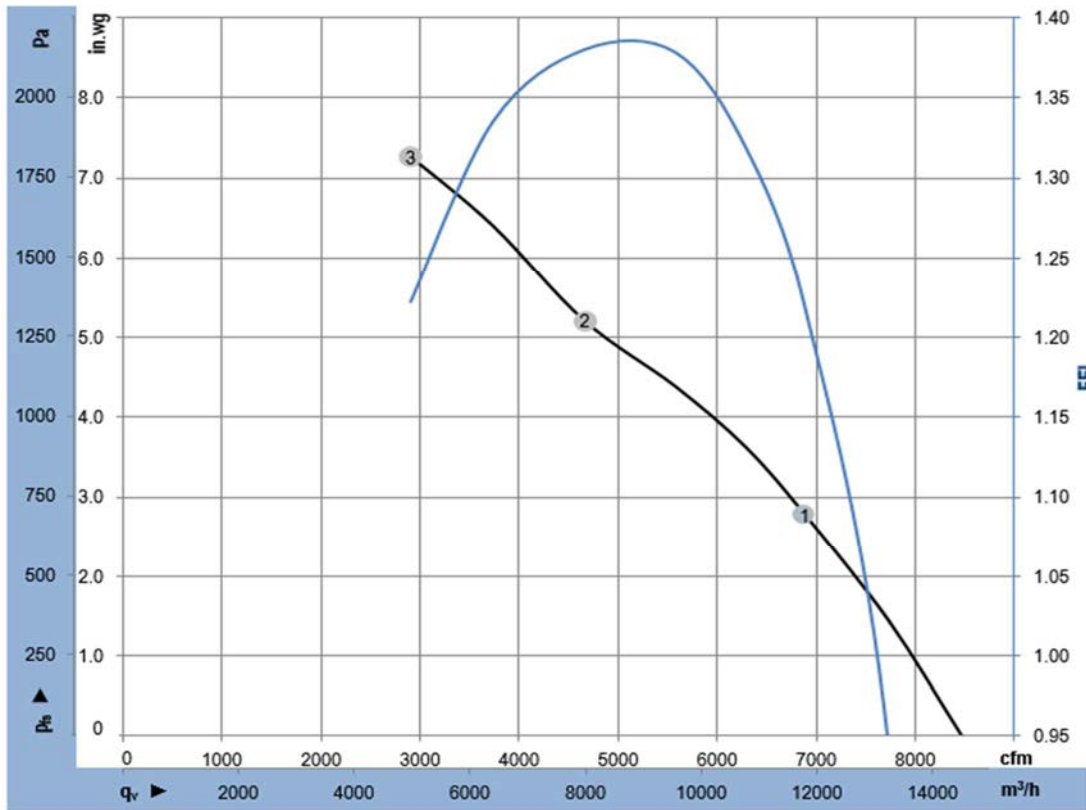
| No. | Conn. | Desig. | Function/ Assignment |
|-----|-------|----------|---|
| | CON1 | L1,L2,L3 | Power supply, phase, see nameplate for voltage range |
| | PE | PE | Protective earth |
| | CON2 | RSA | RS485 interface for MODBUS, RSA; SELV |
| | CON2 | RSB | RS485 interface for MODBUS, RSB; SELV |
| | 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 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 | MODBUS Register for IO mode configuration | INPUT | OUTPUT |
|------------|--|--|---|---|---|---|
| IO1 | Din1 (active high): digital input | active: applied voltage 3,5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC | D158 [0] | source: set value | switch: set value source | signal: fan modulation level % |
| | Ain1 0-10V/PWM: analog input | Ri = 100K, characteristic curve parameterizable, $f_{PWM} = 1k..10kHz$, SELV | D158 [2] | switch: parameter set: #1 / #2 | switch: direction of rotation: cw / ccw | signal: actual speed |
| | Tach out (open collector output) | Umax = 50VDC, Imax = 20mA, SELV | D158 [5] | switch: control function: heating (pos.) / cooling (neg.) | switch: fan enable / disable | signal: remote control output 0-10V |
| | Diagnostics out (open collector output) | Umax = 50VDC, Imax = 20mA, SELV | D158 [6] | | | signal: system modulation level % |
| IO2 | Din2 (active high): digital input | active: applied voltage 3,5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC | D159 [0] | source: sensor value | | signal: tach out (selected directly via IO mode) |
| | Ain2 0-10V/PWM: analog input | Ri = 100K, characteristic curve parameterizable, $f_{PWM} = 1k..10kHz$, SELV | D159 [2] | | | signal: diagnostics out (selected directly via IO mode) |
| | Ain2 4-20mA: analog input | Ri = 125R, characteristic curve parameterizable, SELV | D159 [3] | | | |
| IO3 | Din3 (active high): digital input | active: applied voltage 3,5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC | D15A [0] | | | |
| | Din3 (active low): digital input | active: applied voltage < 1,5VDC, SELV not active: pin open or applied voltage 3,5-50VDC | D15A [1] | | | |
| | PWMIn3: digital input idle level high | PWM = 40Hz - 10kHz, characteristics parameterizable active: pin open or applied voltage 3,5-50VDC not active: applied voltage < 1,5VDC, SELV | D15A [7] | | | |
| | PWMIn3: digital input idle level low | 40Hz - 10kHz, characteristics parameterizable active: applied voltage 3,5-50VDC not active: pin open or applied voltage < 1,5VDC, SELV | D15A [8] | | | |
| | Aout3 0-10V: analog output | function parameterizable, max. 5mA max output frequency 300Hz, SELV | D15A [4] | | | |
| | Tacho out (pulses), analog output | 0-10V max. 5mA, max output frequency 300Hz, SELV | D15A [5] | | | |
| RSA RSB | Diagnostics out (pulses) | 0-10V max. 5mA, max output frequency 300Hz, SELV | D15A [6] | | | |
| | RS485 bus connection, | MODBUS RTU, specification V6.3, SELV | | | | |
| Vout | voltage output | voltage parameterizable 3.3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV | D16E [..] | | | |
| | alternatively: input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage | 15...50VDC | | | | |

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-1870

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~ | 460 | 60 | 2481 | 4250 | 5.7 | 6889 | 2.8 | 1.22 |
| 2 | 3~ | 460 | 60 | 2391 | 4521 | 6.2 | 4664 | 5.2 | 1.38 |
| 3 | 3~ | 460 | 60 | 2481 | 4509 | 6.0 | 2909 | 7.3 | 1.22 |

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.