

EC centrifugal module - RadiPac

backward-curved, single-intake

with support bracket

ebm-papst Mulfingen GmbH & Co. KG

Bachmühle 2 · D-74673 Mulfingen

Phone +49 7938 81-0

Fax +49 7938 81-110

info1@de.fansco.com

www.fansco.com

Limited partnership · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	K3G710-PC05-05	
Motor	M3G150-NA	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min ⁻¹	1150
Power consumption	W	3750
Current draw	A	5.7
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	40

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment

Subject to change

Data according to Commission Regulation (EU) 327/2011 (prEN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	70.1	57.5	09 Power consumption P_{ed}	kW	3.75
02 Measurement category		A		09 Air flow q_v	m³/h	13795
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	657
04 Efficiency grade N		74.6	62	10 Speed (rpm) n	min ⁻¹	1155
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

* Specific ratio = $1 + p_{fs} / 100\,000\text{ Pa}$

LU-198142

The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings).

The dimensions must be requested from ebm-papst. If other air conduction geometries are used on the installation side, the ebm-papst evaluation loses its validity/the conformity must be confirmed again.

The product does not fall within the scope of Regulation (EU) 2019/1781 due to the exception specified in Article 2 (2a) (motors completely integrated into a product).

Technical description

Weight	69 kg
Size	710 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum
Support plate material	Sheet steel, galvanized
Support bracket material	Steel, painted black
Inlet nozzle material	Sheet steel, galvanized
Number of blades	5
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H1
Ambient temperature note	Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	See legend on product drawing
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Operation and alarm display with LED - External 15-50 VDC input (parameterization) - Alarm relay - Integrated PI controller - Configurable inputs/outputs (I/O) - MODBUS V6.3 - Motor current limitation - 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
Power Factor Correction (PFC)	Passive (through low-capacitance DC link)
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC interference emission	According to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
Motor protection	Reverse polarity and locked-rotor protection

EC centrifugal module - RadiPac

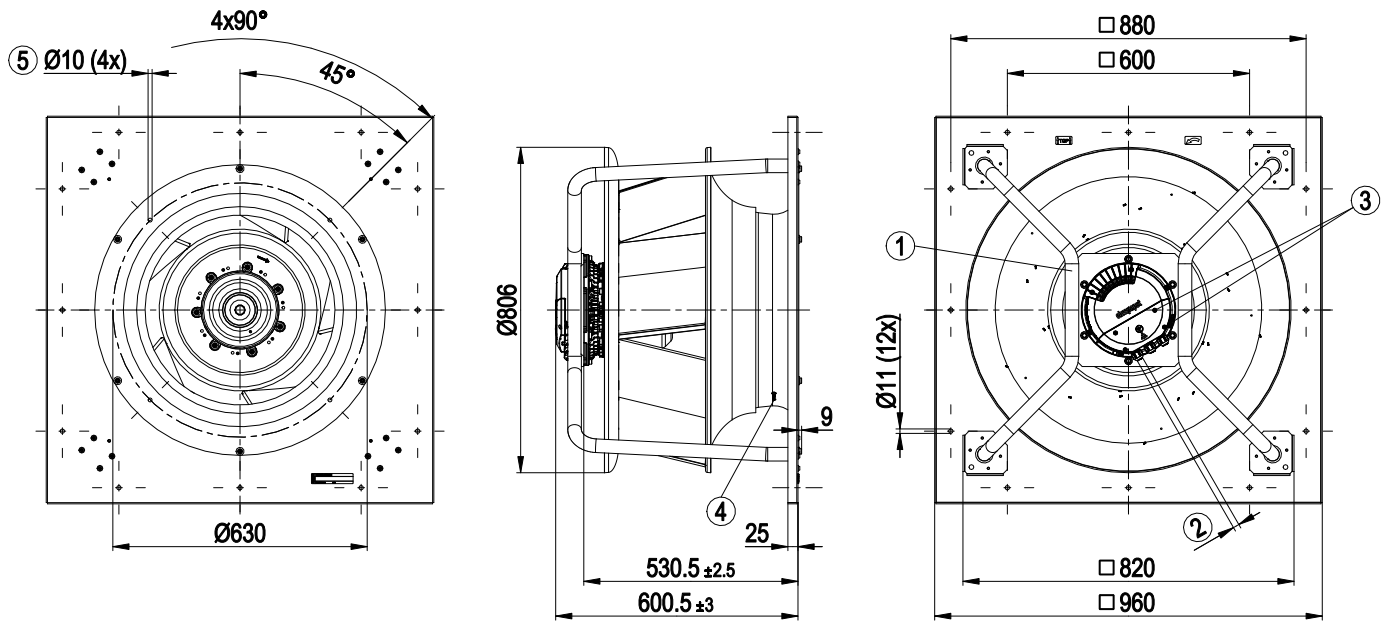
backward-curved, single-intake
with support bracket

Protection class assignment	I; If a protective earth is connected. The built-in component has several local protection class assignments. The final protection class is determined by the intended installation.
Conformity with standards	EN 61800-5-1; CE
Approval	UL 1004-7 + 60730-1; EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1

EC centrifugal module - RadiPac

backward-curved, single-intake
with support bracket

Product drawing



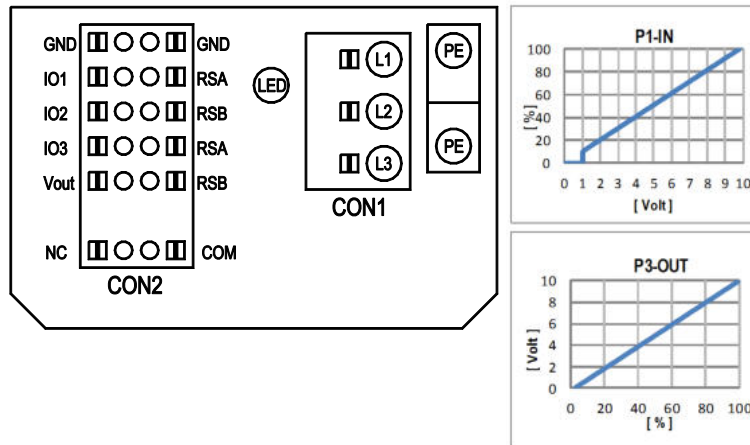
1	Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm (The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
3	Tightening torque 1.5 ± 0.2 Nm
4	Inlet ring with pressure tap (k-factor: 545)
5	Attachment holes for FlowGrid 50710-2-2957 (not included in scope of delivery)

EC centrifugal module - RadiPac

backward-curved, single-intake

with support bracket

Connection diagram



No.	Conn.	Designation	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

EC centrifugal module - RadiPac

backward-curved, single-intake
with support bracket

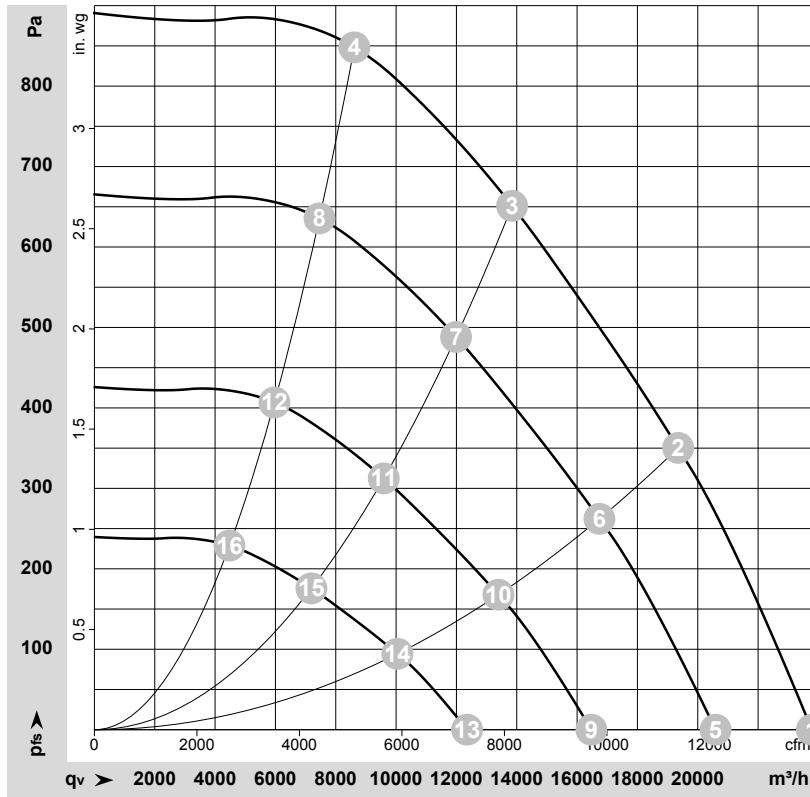
Terminal/plug assignment

configurable option			configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	electrical specification															
CON2	configurable IO mode				active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC															
	IO1	○ Din1 (active high): digital input			active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC															
		○ Ain1 0-10V/PWM: analog input			RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV															
		○ Tach out (open collector output)			Umax = 50VDC, Imax = 20mA, SELV															
IO2	○ Diagnostics out (open collector output)	Umax = 50VDC, Imax = 20mA, SELV																		
	○ Din2 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC																		
	○ Ain2 0-10V/PWM: analog input	RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV																		
	○ Ain2 4-20mA: analog input	RI = 125R, characteristic curve parameterizable, SELV																		
IO3	○ Din3 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC																		
	○ Din3 (active low): digital input	active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC																		
	○ 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																		
	○ 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																		
RSA RSB	○ Aout3 0-10V: analog output	function parameterizable, max. 5mA max output frequency 300Hz, SELV																		
	○ Tacho out (pulses), analog output	0-10V/max. 5mA max output frequency 300Hz, SELV																		
	○ Diagnostics out (pulses)	0-10V/max. 5mA max output frequency 300Hz, SELV																		
	○ Diagnostics out (pulses)	MODBUS RTU, specification V6.3, SELV																		
Vout	RS485 bus connection,																			
	voltage output		voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV																	
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

Curves: Air performance 50 Hz



$$\rho = 1.15 \text{ kg/m}^3 \pm 2 \%$$

Measurement: LU-198142-1

Date: 2019-03-27

Nozzle: 71070-2-4013

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	Wired	U	f	n	P _{ed}	I	LpA _{in}	LwA _{in}	LwA _{out}	q _V	p _{fs}	q _V	p _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	m³/h	Pa	cfm	in. wg
1	3~	400	50	1150	1949	3.05	75	83	86	23785	0	14000	0.00
2	3~	400	50	1150	3197	4.90	73	81	83	19350	350	11390	1.41
3	3~	400	50	1150	3750	5.70	71	78	82	13845	650	8150	2.61
4	3~	400	50	1150	3487	5.33	74	81	86	8615	850	5070	3.41
5	3~	400	50	1000	1265	1.98	71	80	83	20590	0	12120	0.00
6	3~	400	50	1000	2070	3.17	69	77	80	16740	262	9855	1.05
7	3~	400	50	1000	2434	3.71	67	75	78	11990	490	7055	1.97
8	3~	400	50	1000	2263	3.46	70	78	82	7460	641	4390	2.57
9	3~	400	50	800	648	1.01	66	74	77	16475	0	9695	0.00
10	3~	400	50	800	1060	1.62	64	72	74	13390	168	7880	0.67
11	3~	400	50	800	1246	1.90	62	69	72	9590	314	5645	1.26
12	3~	400	50	800	1159	1.77	65	72	77	5970	410	3515	1.65
13	3~	400	50	600	273	0.43	58	67	70	12355	0	7270	0.00
14	3~	400	50	600	447	0.69	56	64	67	10045	94	5910	0.38
15	3~	400	50	600	526	0.80	54	62	65	7195	176	4235	0.71
16	3~	400	50	600	489	0.75	57	65	69	4475	231	2635	0.93

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side
 LwA_{out} = Sound power level outlet side · q_V = Air flow · p_{fs} = Pressure increase