

Nominal data

Type	K3G400-FV72-J1	
Motor	M3G112-GA	
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	2450
Power consumption	W	2100
Current draw	A	3.3
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 (EN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	70.4	54.9	09 Power consumption P_{ed}	kW	2.08
02 Measurement category		A		09 Air flow q_v	m³/h	6105
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	816
04 Efficiency grade N		77.5	62	10 Speed (rpm) n	min ⁻¹	2450
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-215131

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

Size	400 mm
Motor size	112
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Support plate material	Sheet steel, galvanized
Support bracket material	Steel, painted black
Inlet nozzle material	Sheet steel, galvanized
Number of blades	6
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 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
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
Motor protection	Electronic motor protection
Protection class assignment	I; If a protective earth is connected by the customer This component for installation may have several local protection classes. This information relates to this component's basic design. The final protection class is based on the component's intended installation and connection.
Conformity with standards	EN 61800-5-1; CE

K3G400-FV72-J1

EC centrifugal module - RadiCal

backward-curved, single-intake

with support bracket

Approval

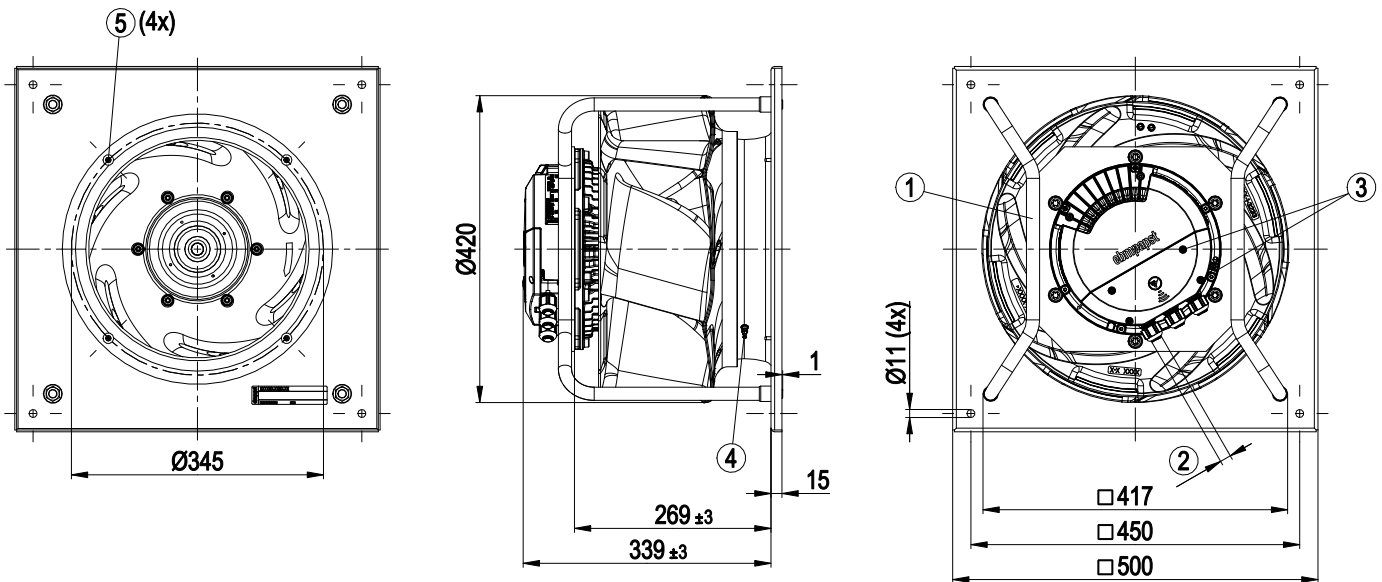
CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1



EC centrifugal module - RadiCal

backward-curved, single-intake
with support bracket

Product drawing

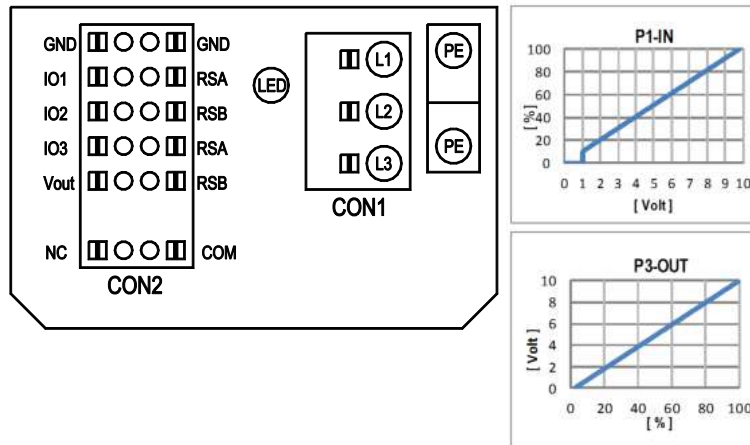


1	Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm (The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
3	Tightening torque 1.5 ± 0.2 Nm
4	Inlet ring 40355-2-4013 with pressure tap (k-factor: 235)
5	Attachment for inlet ring and FlowGrid (00400-2-2957 not included in scope of delivery)

EC centrifugal module - RadiCal

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

Terminal/plug assignment

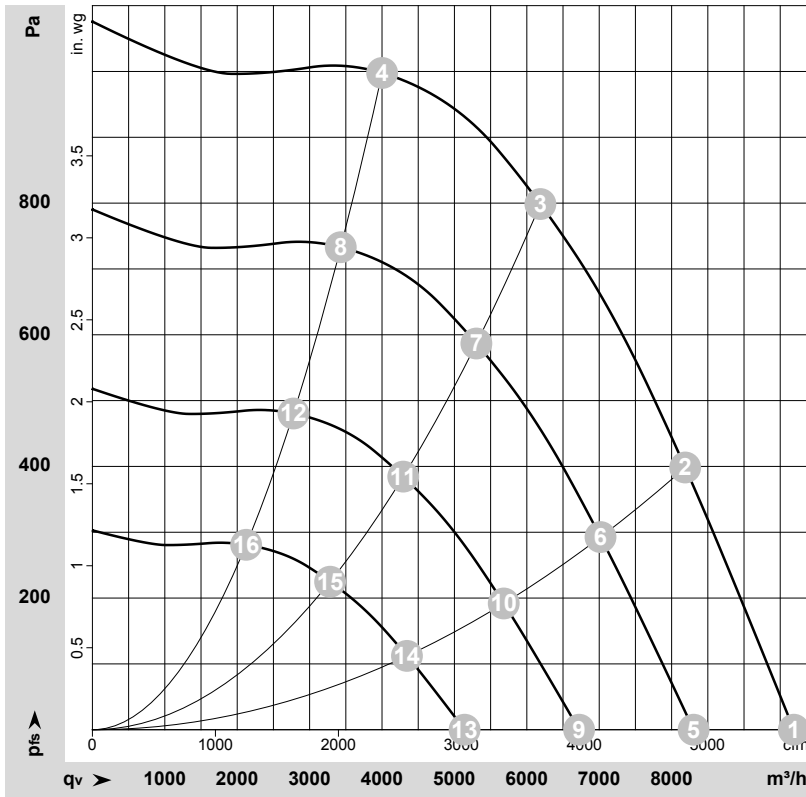
○ configurable option																												
For further information and additional functions see EC Control Software, Fan-Set-App. or MODBUS Parameter Specification V6.3																												
CON2	configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	electrical specification	configurable IO mode	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	D101 [...] D147 [...] D104 [...] D12E [...] D148 [...] D16C [...] D16A [...]	INPUT	OUTPUT	(selected directly via IO mode)	signal: tach out	(selected directly via IO mode)	signal: diagnostics out	D130 [0]	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 output for auto-addressing	D130 [4]		
				Din1 0-10V/PWM: analog input	RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10kHz, SELV	D158 [2]	○	switch: control function: heating (pos.) / cooling (neg.)	○			switch: direction of rotation: cw / ccw	D16C [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]
				Tach out (open collector output)	U _{max} = 50VDC, I _{max} = 20mA, SELV	D158 [5]	○	switch: parameter set: #1 / #2	○			switch: set value source	D16C [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]
				Diagnostics out (open collector output)	U _{max} = 50VDC, I _{max} = 20mA, SELV	D158 [6]	○	switch: parameter set: #1 / #2	○			switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]
				Din2 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC	D159 [0]	○	switch: parameter set: #1 / #2	○			switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]
				Ain2 0-10V/PWM: analog input	RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10kHz, SELV	D159 [2]	○	switch: parameter set: #1 / #2	○			switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]
				Ain2 4-20mA: analog input	RI = 125R, characteristic curve parameterizable, SELV	D159 [3]	○	switch: parameter set: #1 / #2	○			switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]
				Din3 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC	D15A [0]	○	switch: parameter set: #1 / #2	○			switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]
				Din3 (active low): digital input	active: applied voltage < 1,5VDC, SELV not active: pin open or applied voltage 3.5-50VDC	D15A [1]	○	switch: parameter set: #1 / #2	○			switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]
				IO3	PWMMin3: digital input, idle level high	PWM = 40Hz - 10kHz, characteristics parameterizable	D15A [7]	○	switch: parameter set: #1 / #2			○	switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing
active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV	D15A [8]	○	switch: parameter set: #1 / #2			○	switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]					
40Hz - 10kHz, characteristics parameterizable	D15A [8]	○	switch: parameter set: #1 / #2			○	switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]					
active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV	D15A [8]	○	switch: parameter set: #1 / #2			○	switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]					
RSA RSB	voltage output	Aout3 0-10V: analog output	D15A [4]	○	switch: parameter set: #1 / #2	○	switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]					
		Tacho out (pulses), analog output	D15A [5]	○	switch: parameter set: #1 / #2	○	switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]					
		Diagnostics out (pulses)	D15A [6]	○	switch: parameter set: #1 / #2	○	switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]					
		RS485 bus connection,	D15A [6]	○	switch: parameter set: #1 / #2	○	switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]					
Vout	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	MODBUS RTU, specification V6.3, SELV	D15A [6]	○	switch: parameter set: #1 / #2	○	switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]					
		voltage parameterizable 3.3..24VDC +/- 5%, P _{max} =800mW, short-circuit-proof, supply for external devices, SELV	D16E [...]	○	switch: parameter set: #1 / #2	○	switch: set value source	D147 [...]	switch: fan enable / disable	D16A [...]	○	signal: tach out	(selected directly via IO mode)	signal: fan modulation level %	D130 [0]	signal: actual speed	D130 [1]	signal: system modulation level %	D130 [2]	signal: remote control output 0-10V	D130 [5]	signal: auto-addressing	D130 [4]					

◦ 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-215131-1

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)	m ³ /h	Pa	cfm	in. wg
1	3~	400	50	2450	1389	2.23	79	88	91	9690	0	5700	0.00
2	3~	400	50	2450	1882	2.94	75	84	88	8185	400	4820	1.61
3	3~	400	50	2450	2100	3.30	71	79	85	6185	800	3640	3.21
4	3~	400	50	2450	1936	3.02	75	84	88	4000	1000	2355	4.01
5	3~	400	50	2100	875	1.41	75	84	87	8305	0	4890	0.00
6	3~	400	50	2100	1185	1.85	71	80	84	7020	295	4130	1.18
7	3~	400	50	2100	1314	2.05	67	75	82	5305	589	3120	2.36
8	3~	400	50	2100	1219	1.90	71	80	84	3430	735	2020	2.95
9	3~	400	50	1700	464	0.75	70	78	82	6720	0	3955	0.00
10	3~	400	50	1700	629	0.98	66	74	79	5680	193	3345	0.77
11	3~	400	50	1700	697	1.09	61	70	76	4295	386	2525	1.55
12	3~	400	50	1700	647	1.01	66	74	79	2775	482	1635	1.94
13	3~	400	50	1300	208	0.33	63	72	75	5140	0	3025	0.00
14	3~	400	50	1300	281	0.44	59	68	72	4345	113	2555	0.45
15	3~	400	50	1300	312	0.49	55	63	70	3285	226	1930	0.91
16	3~	400	50	1300	289	0.45	59	68	72	2125	282	1250	1.13

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

