EC centrifugal module - Plug fan

backward curved, single inlet

with support plate

K3G310-AV69-05 ebmpapst Datasheet
sales@fansco.com
www.fansco.com

Nominal data

Type	**K3G310-AV69-05**
Motor	**M3G112-EA**

Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Type of data definition		ml
Speed	min^{-1}	3040
Power input	W	1420
Current draw	A	2.2
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	60

ml = Max. load · me = Max. efficiency · fa = Running at free air · cs = Customer specs · cu = Customer unit
Subject to alterations

Data according to ErP directive

Installation category	A
Efficiency category	Static
Variable speed drive	Yes
Specific ratio*	1.01

* Specific ratio = 1 + p_{fs} / 100 000 Pa

		Actual	Request 2013	Request 2015
Overall efficiency η_{es}	%	56.3	49	53
Efficiency grade N		65.3	58	62
Power input P_{ed}	kW	1.38		
Air flow q_v	m^3/h	2800		
Pressure increase p_{fs}	Pa	929		
Speed n	min^{-1}	3000		

Data definition with optimum efficiency. LU-126842
The ErP data is determined using a motor-impeller combination in a standardised measurement configuration.

EC centrifugal module - Plug fan

backward curved, single inlet

with support plate

Technical features

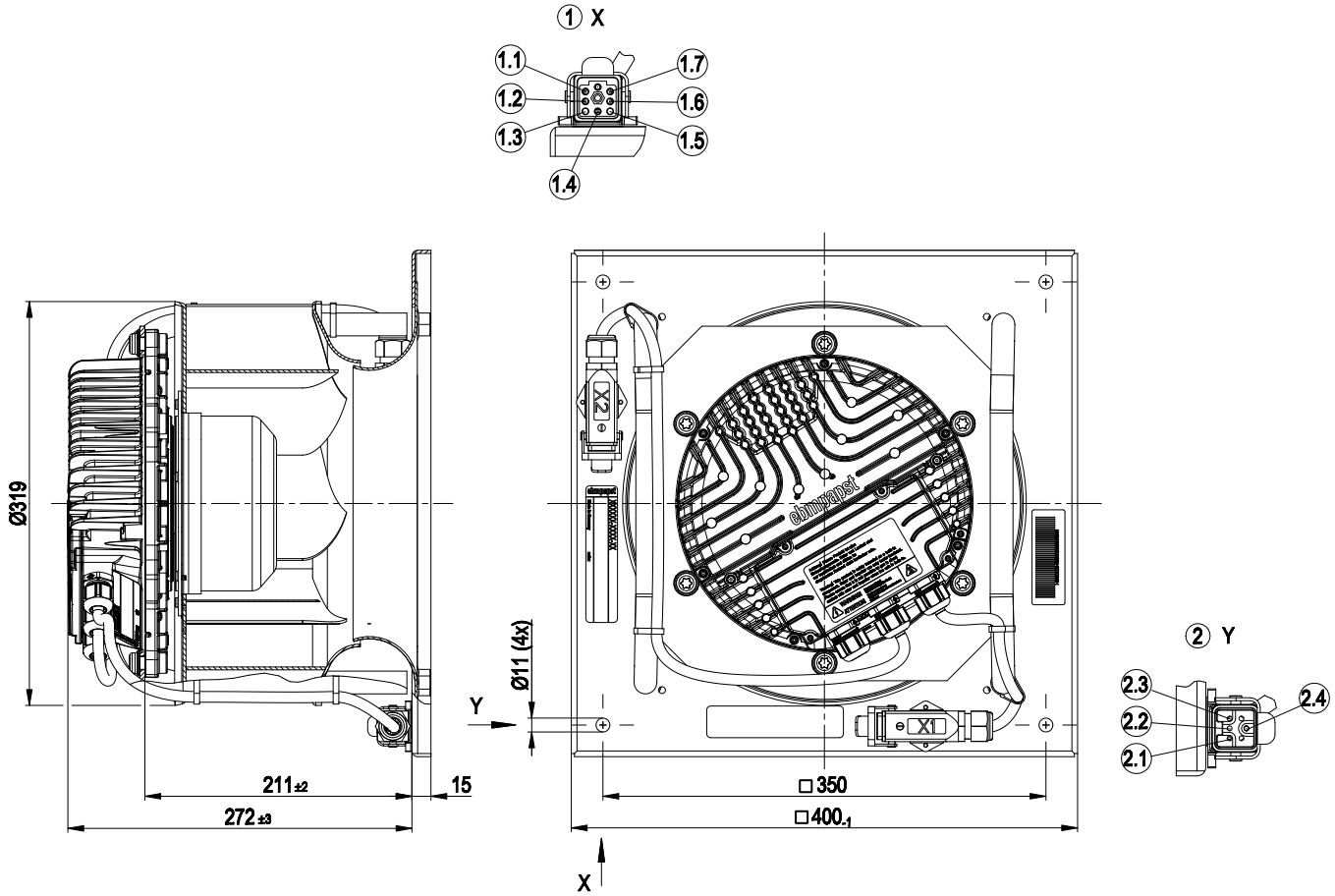
Mass	17.9 kg
Size	310 mm
Surface of rotor	Coated in black
Material of electronics housing	Die-cast aluminium
Material of impeller	Aluminium sheet, coated in black
Material of mounting plate	Sheet steel, coated in black
Material of support bracket	Steel, coated in black
Material of inlet nozzle	Sheet steel, galvanised and coated in black
Number of blades	7
Direction of rotation	Clockwise, seen on rotor
Type of protection	IP 54
Insulation class	"B"
Humidity class	F4-1
Max. permissible ambient motor temp. (transp./ storage)	+ 80 °C
Min. permissible ambient motor temp. (transp./storage)	- 40 °C
Mounting position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensate discharge holes	Rotor-side
Operation mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Output 20 VDC, max. 50 mA - Output for slave 0-10 V - Input for sensor 0-10 V or 4-20 mA - External 24 V input (programming) - Alarm relay - Integrated PID controller - Motor current limit - PFC, passive - RS485 MODBUS RTU - Soft start - Control input 0-10 VDC / PWM - Over-temperature protected electronics / motor - Line undervoltage / phase failure detection
EMC interference immunity	Acc. to EN 61000-6-2 (industrial environment)
EMC interference emission	Acc. to EN 61000-6-3 (household environment)
Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)	<= 3.5 mA
Electrical leads	Via terminal box
Motor protection	Thermal overload protector (TOP) wired internally
Protection class	I (if protective earth is connected by customer)
Product conforming to standard	EN 61800-5-1; CE

EC centrifugal module - Plug fan

backward curved, single inlet

with support plate

Product drawing



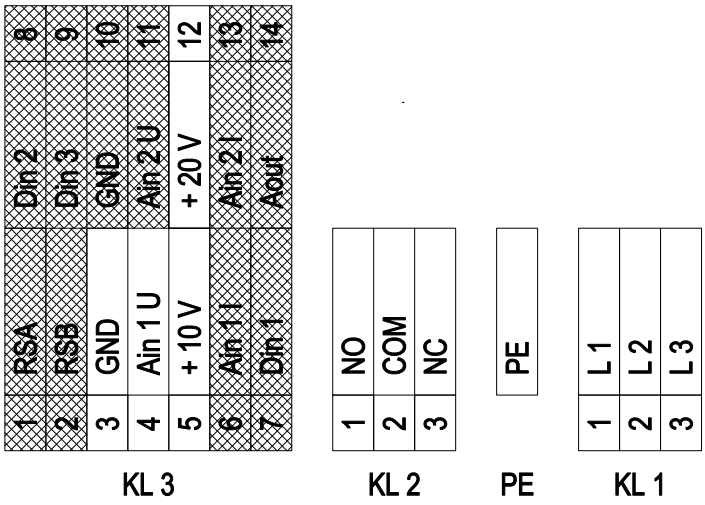
1	HAN 3A-asgw-QB-M20 socket housing with Han Q5/O-M pin insert and Han E pin contacts (made by Harting)
1.1	GND
1.2	0-10V/PWM
1.3	+20V
1.4	+10V
1.5	NO
1.6	COM
1.7	NC
2	HAN 3A-asgw-QB-M20 socket housing with Han Q7/O-M pin insert and Han D pin contacts (made by Harting)
2.1	L1
2.2	L2
2.3	L3
2.4	PE

EC centrifugal module - Plug fan

backward curved, single inlet

with support plate

Connection screen



grey shaded => not brought out via leads

No.	Conn.	Designation	Function / assignment
KL 1	1	L1	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
KL 1	2	L2	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
KL 1	3	L3	Mains supply connection, supply voltage 3~380-480 VAC; 50/60 Hz
PE		PE	Earth connection, PE connection
KL 2	1	NO	Status relay, floating status contact; normally open; close with error
KL 2	2	COM	Status relay; floating status contact; changeover contact; common connection; contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA
KL 2	3	NC	Status relay, floating status contact; normally closed with error
KL 3	1	RSA	Bus connection RS485; RSA; MODBUS RTU
KL 3	2	RSB	Bus connection RS485; RSB; MODBUS RTU
KL 3	3 / 10	GND	Signal ground for control interface KL3
KL 3	4	Ain1 U	Analog input 1 (set value); 0-10 V; Ri= 100 kΩ; parametrisable curve; only usable as alternative to input Ain1 I
KL 3	5	+ 10 V	Fixed voltage output 10 VDC; +10 V +/-3 %; max. 10 mA; short circuit proof; power supply for ext. devices (e.g. potentiometer)
KL 3	6	Ain1 I	Analog input 1 (set value); 4-20 mA; Ri= 100 Ω; parametrisable curve; only usable as alternative to input Ain1 U
KL 3	7	Din1	Digital input 1: enabling of electronics; enabling: open pin or applied voltage 5 to 50 VDC; disabling: bridge to GND or applied voltage < 1 VDC; reset function: triggers software reset after a level change to <1 V
KL 3	8	Din2	Digital input 2: parameter set switch 1/2; according to EEPROM setting, the valid/used parameter set is selectable per BUS or per digital input DIN2. Parameter set 1: open pin or applied voltage 5 to 50 VDC; parameter set 2: bridge to GND or applied voltage < 1 VDC
KL 3	9	Din3	Digital input 3: Control characteristic of the integrated controller; according to EEPROM setting, the control characteristic of the integrated controller is normally/inversely selectable per BUS or per digital input; normal: open pin or applied voltage 5 to 50 VDC (control deviation = actual sensor value - set value) inverse: bridge to GND or applied voltage < 1 VDC (control deviation = set value - actual sensor value)
KL 3	11	Ain2 U	Analog input 2 (actual sensor value); 0-10 V; Ri= 100 kΩ; parametrisable curve; only usable as alternative to input Ain2 I
KL 3	12	+ 20 V	Fixed voltage output 20 VDC; +20 V +25/-10 %; max. 50 mA; short circuit proof; power supply for ext. devices (e.g. sensors)
KL 3	13	Ain2 I	Analog input 2 (actual sensor value) 4-20 mA; Ri= 100 Ω; parametrisable curve; only usable as alternative to input Ain2 U

EC centrifugal module - Plug fan

backward curved, single inlet

with support plate

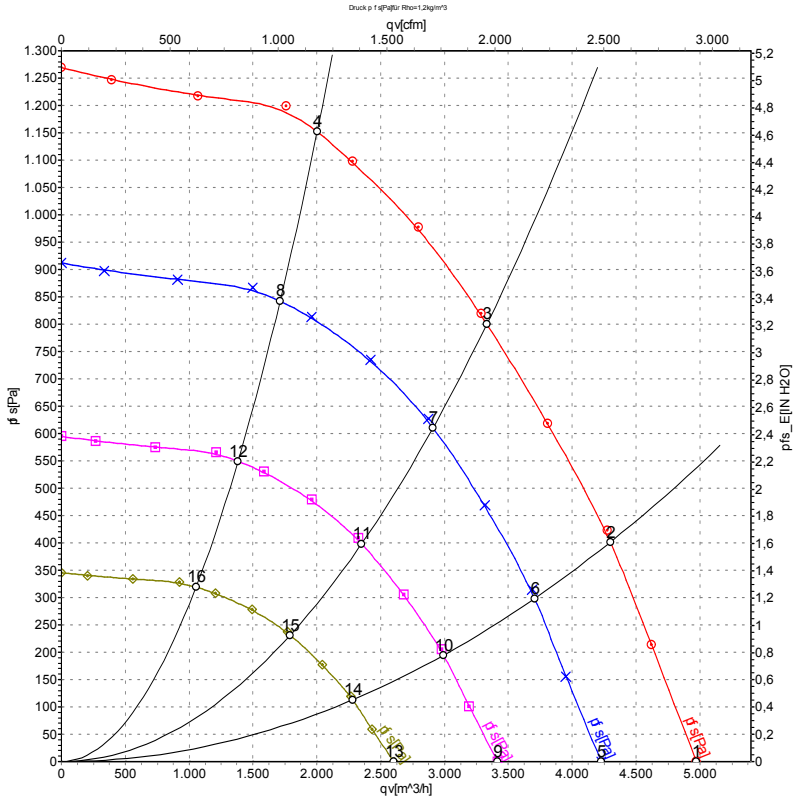
No.	Conn.	Designation	Function / assignment
KL 3	14	Aout	Analogue output 0-10 V; max. 5 mA; output of the actual motor control factor (output voltage of electronics)/ of the actual motor speed; function selectable per BUS; parametrisable curve.

EC centrifugal module - Plug fan

backward curved, single inlet

with support plate

Charts: Air flow 50 Hz



Measurement: LU-126842

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring set-up, please contact ebm-papst. Suction-side noise levels: LwA measured as per ISO 13347 / LpA measured with 1m distance to fan axis. The values given are valid under the measuring conditions mentioned above and may vary according to the actual installation situation. With any deviation from the standard set-up, the specific values have to be checked and reviewed with the unit installed.

Measured values

	U	f	n	P_{ed}	I	LpA_{in}	LwA_{in}	LwA_{out}	qv	p_{fs}
	V	Hz	min^{-1}	W	A	dB(A)	dB(A)	dB(A)	m^3/h	Pa
1	400	50	3040	1154	1.77	82	89	95	4975	0
2	400	50	3040	1330	2.04	78	85	91	4300	400
3	400	50	3040	1420	2.20	76	83	89	3330	800
4	400	50	3040	1315	2.01	79	88	90	2005	1150
5	400	50	2600	709	1.09	78	85	91	4230	0
6	400	50	2600	852	1.30	75	82	88	3705	304
7	400	50	2600	949	1.45	73	80	86	2910	615
8	400	50	2600	823	1.26	75	84	87	1715	842
9	400	50	2100	374	0.58	73	81	87	3415	0
10	400	50	2100	449	0.69	70	78	83	2990	198
11	400	50	2100	500	0.77	68	75	81	2350	401
12	400	50	2100	434	0.66	71	80	82	1385	550
13	400	50	1600	165	0.25	68	75	81	2600	0
14	400	50	1600	199	0.30	64	72	78	2280	115
15	400	50	1600	221	0.34	62	69	75	1790	233
16	400	50	1600	192	0.29	65	74	77	1055	319

U = Supply voltage · f = Frequency · n = Speed · P_{ed} = Power input · I = Current draw · LpA_{in} = Sound pressure level inlet side · LwA_{in} = Sound power level inlet side · LwA_{out} = Sound power level outlet side
qv = Air flow · p_{fs} = Pressure increase