K3G310-BF02-N4

EC centrifugal fan

for rail applications

ebm-papst Mulfingen GmbH & Co. KG
Bachmühle 2 · D-74673 Mulfingen
Phone +49 7938 81-0
Fax +49 7938 81-110
info1@de.ebmpapst.com
www.ebmpapst.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	**K3G310-BF02-N4**
Motor	**M3G084-GF**

Phase		3~
Nominal voltage	VAC	480
Nominal voltage range	VAC	400 .. 510
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min^{-1}	3000
Power consumption	W	1100
Current draw	A	1.47
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	60

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

EC centrifugal fan

for rail applications

Technical description

Weight	14 kg
Size	310 mm
Motor size	84
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum
Support plate material	Sheet steel, galvanized and painted black
Support bracket material	Steel, painted black
Inlet nozzle material	Sheet steel, galvanized and painted black
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H3
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	Rotor on top
Condensation drainage holes	None
Mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Alarm relay - Integrated PID controller - Run monitoring - Power limiter - Motor current limitation - Emergency operation - PFC, passive - RS-485 MODBUS-RTU - Soft start - EEPROM write cycles: 100,000 maximum - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - Overvoltage detection - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
EMC regulations	According to EN 50121-3-2
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Motor protection	Thermal overload protector (TOP) internally connected
With cable	Lateral
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 15085-1, CPC3: 2007; EN 45545-2, HL3: 2013; EN 50155: 2008; EN 61373, Cat. 1B: 2010

ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

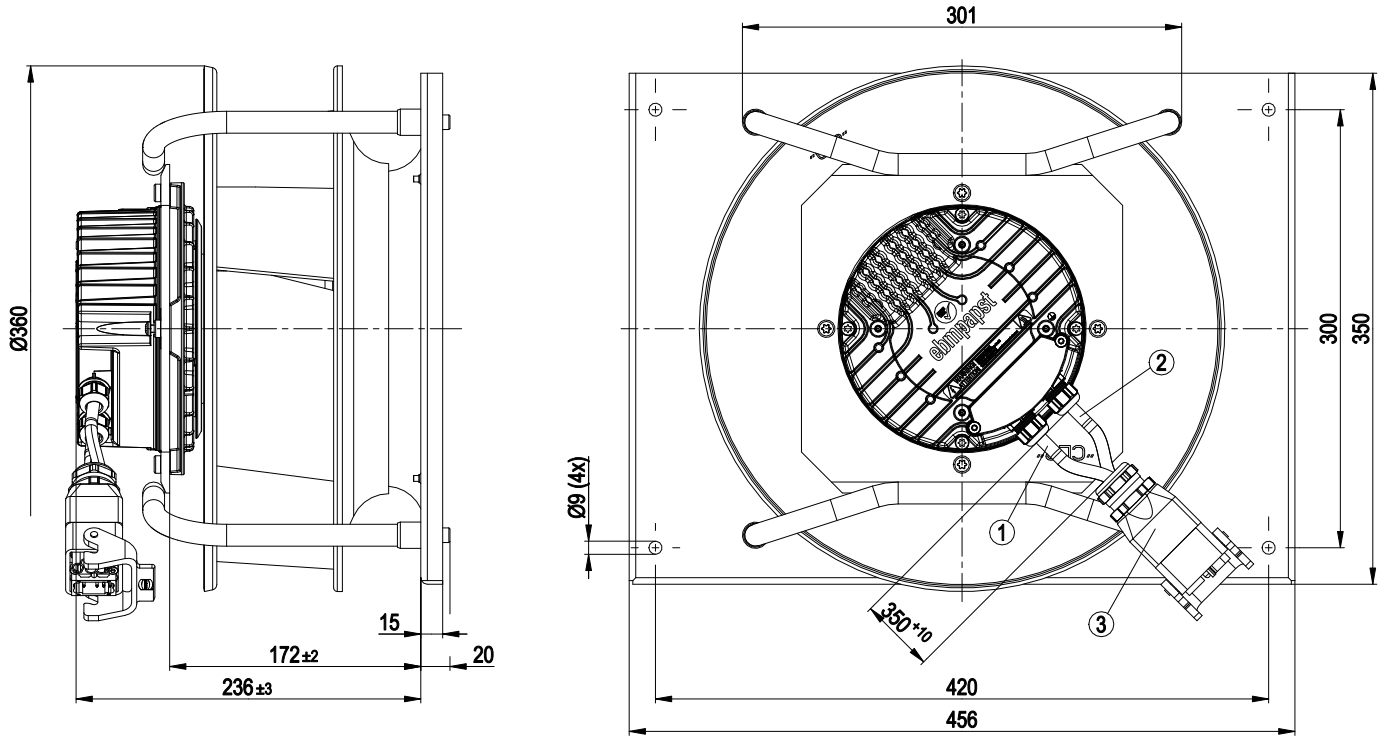
Comment	Prerequisite for operation is a Class 1 vehicle electrical system architecture according to EN 50533. If voltage (e.g. 230 VAC) is passed through the alarm relay, the SELV signal wires lose their property of reinforced insulation, meaning they then have only basic insulation. The SELV property (reinforced insulation) is not lost when voltages of up to 110 VDC are passed through the alarm relay.

ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan

for rail applications

Product drawing



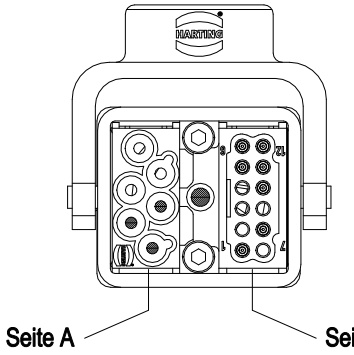
1	Cable halogen-free, BETAtrans® 3 GKW flex, 4G 1.5 mm², 4x crimped ferrules
2	Cable halogen-free, BETAtrans® 3 GKW flex, 7x 0.5 mm², 7x crimped ferrules
3	Connector housing Harting HAN Modular TWIN 09 14 002 0301 with Han E Protected Modul 9140063041 and Han DD Modul 9140123001
	Plug assignment on separate drawing: Accessories

ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan

for rail applications

Accessory part



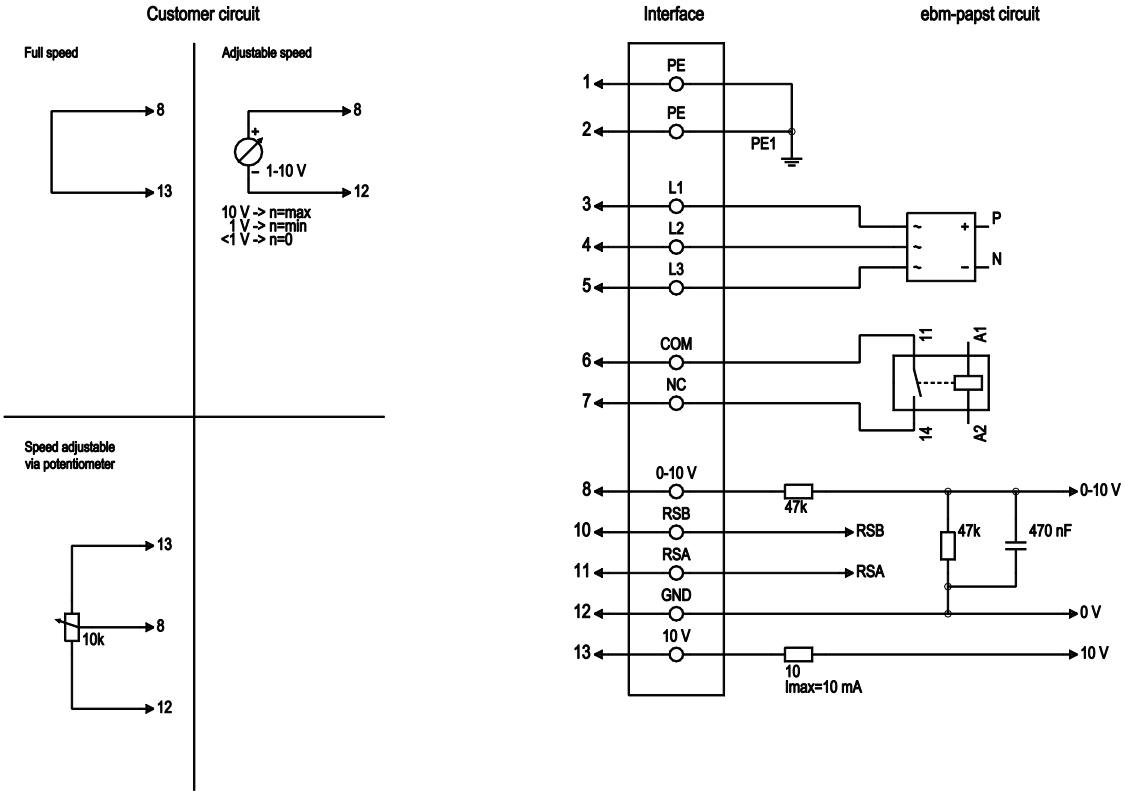
Motorseite					
Versorgung (Seite A)			Signale (Seite B)		
BETAtrans 3 GKW flex sw 4G 1,5 mm²			BETAtrans 3 GKW C-flex 7x 0,5 mm²		
Pin-Nr.	Ader-Nr. / Farbe	Funktion	Pin-Nr.	Ader-Nr. / Farbe	Funktion
1	1 / sw	3~480 V L1	1	1 / gr	Fehlermelderelais (COM)
2	2 / bl	3~480 V L2	2		Reserve
3	3 / br	3~480 V L3	3		Reserve
4		Reserve	4		Reserve
5		Reserve	5	2 /ws	RSA (MODBUS)
6		Reserve	6	3 / br	RSB (MODBUS)
Gehäuse	4 / gn/ge	PE	7		Reserve
			8	4 / or	Fehlermelderelais (NC)
			9		Reserve
			10	5 / bl	GND (SELV)
			11	6 / ge	PWM/LIN
			12	7 / rt	P+10 V / 10 mA (SELV)

ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan

for rail applications

Connection diagram



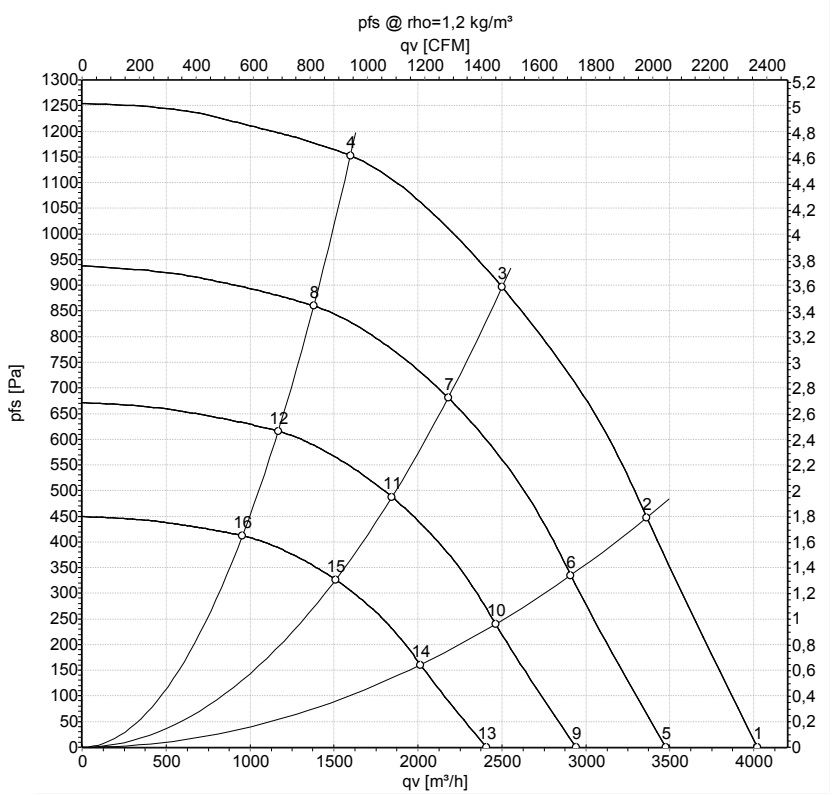
No.	Conn.	Designation	Color	Function/assignment
1	1, 2	PE	green/yellow	Protective earth
1	3	L1	black	Power supply, phase, 50/60 Hz
1	4	L2	blue	Power supply, phase, 50/60 Hz
1	5	L3	brown	Power supply, phase, 50/60 Hz
2	6	COM	gray	Status relay, floating status contact, common connection, contact rating 250 VAC / 30 VDC 5 A minimum contact separation 1 mA / 5 VDC, reinforced insulation on supply side, basic insulation on control interface side
2	7	NC	orange	Status relay, floating status contact, break for failure, contact rating 250 VAC / 30 VDC 5 A minimum contact separation 1 mA / 5 VDC, reinforced insulation on supply side, basic insulation on control interface side
2	8	0-10V	yellow	Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable curve
2	10	RSB	brown	RS485 interface for MODBUS, RSB; SELV
2	11	RSA	white	RS485 interface for MODBUS, RSA; SELV
2	12	GND	blue	Reference ground for control interface, SELV
2	13	+10V	red	Fixed voltage output 10 VDC, +10 V ± 3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. pot); SELV

ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan

for rail applications

Curves: Air performance 50 Hz



Measurement: LU-165170-1

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

	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	480	50	3000	852	1.13	82	91	96	4025	0	2370	0.00
2	480	50	3000	1016	1.32	77	85	91	3365	450	1980	1.81
3	480	50	3000	1100	1.47	73	81	87	2500	900	1475	3.61
4	480	50	3000	1078	1.40	77	86	90	1600	1150	940	4.62
5	480	50	2600	550	0.73	79	87	92	3480	0	2045	0.00
6	480	50	2600	658	0.86	73	82	87	2910	334	1715	1.34
7	480	50	2600	751	0.97	69	78	83	2180	681	1285	2.73
8	480	50	2600	695	0.90	73	82	86	1380	860	810	3.45
9	480	50	2200	333	0.44	74	83	88	2945	0	1730	0.00
10	480	50	2200	399	0.52	69	78	83	2465	239	1450	0.96
11	480	50	2200	455	0.59	65	74	79	1845	488	1085	1.96
12	480	50	2200	421	0.55	69	78	82	1170	616	685	2.47
13	480	50	1800	183	0.24	69	78	83	2410	0	1415	0.00
14	480	50	1800	218	0.28	64	72	78	2015	160	1185	0.64
15	480	50	1800	249	0.32	60	69	74	1510	327	890	1.31
16	480	50	1800	230	0.30	64	73	77	955	412	560	1.65

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

ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com