Fans for agriculture

2007

ebmpapst

Fans for agriculture

ebm-papst fans for agriculture are designed to produce maximum airflow whilst using minimum power and to withstand the arduous environments of poultry and pig houses.

Wallplate fans are available from size 250mm-630mm in either AC or our highly efficient EC motor design.

AC fans sized 250-450mm are generally IP44 rated with class B motor insulation. The sickle-bladed impellers are constructed from pressed sheet-steel, with galvanised-steel wall plates, they are all coated in corrosion-resistant black paint. These fan sizes are available in 2-, 4- or 6-pole 230V AC single phase, with maximum operating temperatures of up to 70°C

AC fans sized 500-630mm are generally IP54 rated with class F motor insulation. The sickle-bladed impellers are constructed from sheet aluminium. They are all coated in corrosion resistant black paint. These fan sizes are available in 4- or 6-pole 230V AC single phase, with maximum operating temperatures of up to 85°C.

All AC fans have capacitors pre-wired into an IP54 terminal box; they also all have lead out thermal overload protection.

EC plate fans are IP44 rated and constructed with either pressed sheet steel or fibreglass reinforced PA6 sickle impellers and galvanised-steel wall plates. They are coated in a corrosion-resistant black paint. These fans are available in 230V AC single phase or 400V AC three phase (depending on size) with a maximum operating temperature of 60°C.

All the fans are speed controllable via the range of compatible controllers listed in this catalogue. There is also a range of accessories including motor protection devices and shutters.

The complete range of plate and cased axial fans are CE marked and RoHS compliant. They are supplied individually boxed with full installation and operating instructions.

Note: please check individual fan information for full specification details.

Contents

AC plate-mounted axials

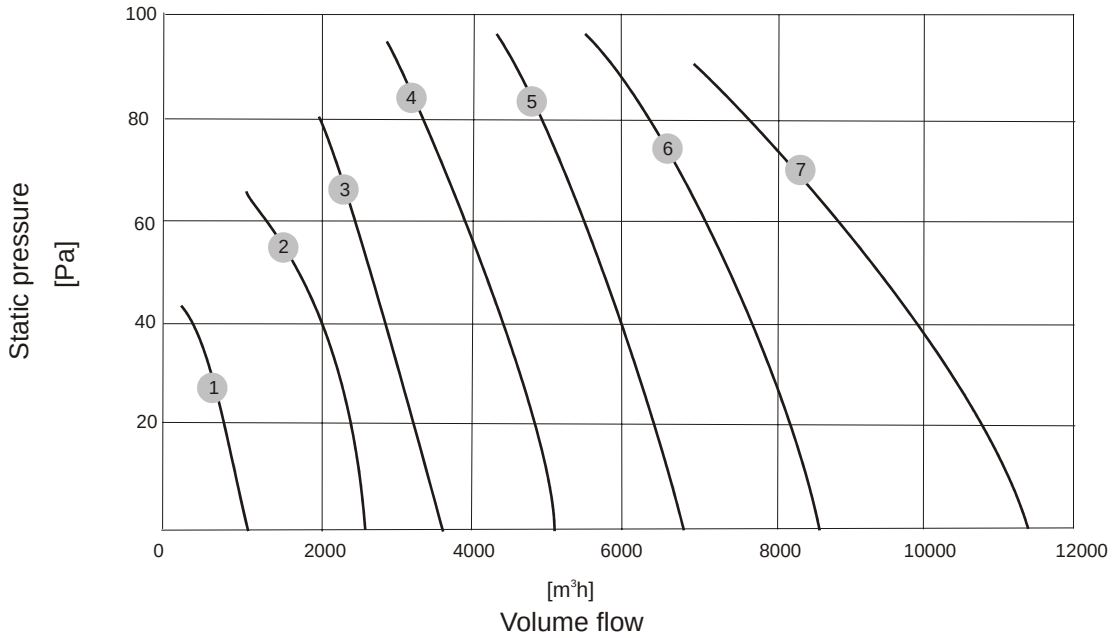
size range Ø250-630mm

- Pressed steel blades with galvanised steel wallplate
- Maintenance free, sealed-for-life bearings
- Thermal protection (TK) lead-out
- Corrosion resistant black coating
- IP54 terminal box
- 100% speed controllable motors
- Inlet guard

Dimensions

Order code		Curve	Nominal voltage	Frequency	Airflow	Speed/rpm	Max Power Input	Max Current Draw	Sound pressure @ 7m	Perm amb. temp.	Mass	Insulation class	IP rating
			VAC	Hz	m^3/h	min^{-1}	W	A	dB(A)	°C	kg		
W4E250-DI02-08	M4E068-BF	1	230	50	1010	1400	47	0.21	37	45	3.4	B	44
W4E315-DP18-38	M4E068-DF	2	230	50	2440	1410	120	0.56	42	55	5.5	B	44
W4E350-DP06-39	M6E068-EC	3	230	50	3250	1365	180	0.78	47	60	6.8	F	44
W4E400-DS02-38	M4E074-GA	4	230	50	5000	1400	300	1.35	52	60	7.3	F	44
W4E450-DT05-15	M4E094-HA	5	230	50	6640	1400	470	2.2	51	70	9.6	F	54
W4E500-DZ09-20	M4E094-HA	6	230	50	8322	1347	953	4.8	55	60	13.5	F	54
W6E630-DE01-20	M6E110-GF	7	230	50	11220	870	560	2.5	52	60	20.5	F	54

Subject to alterations



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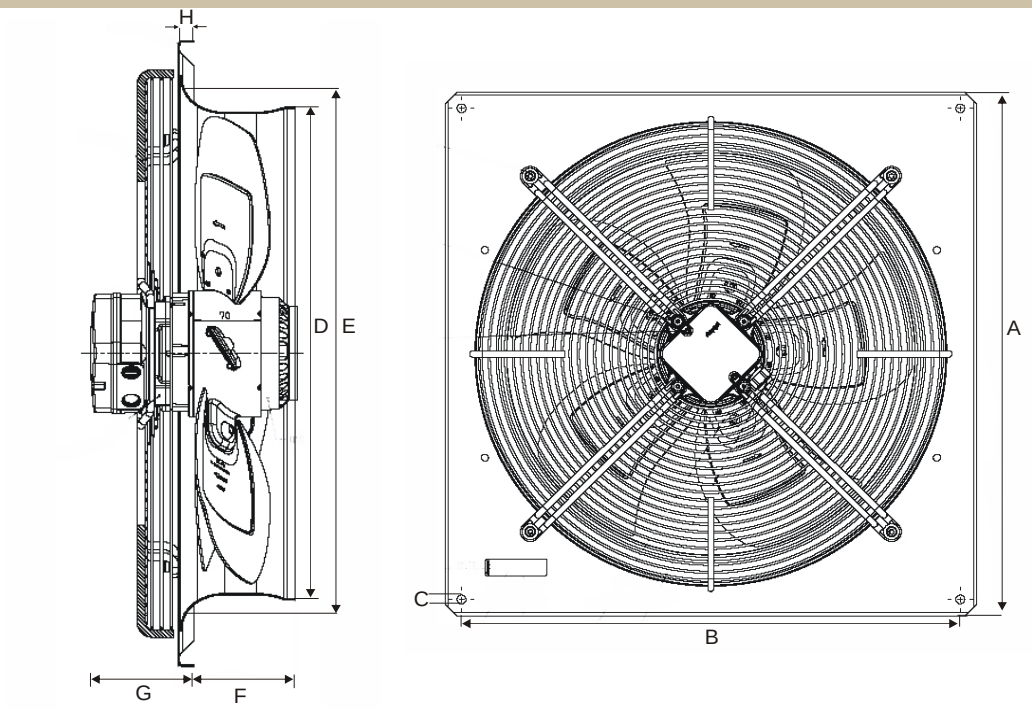
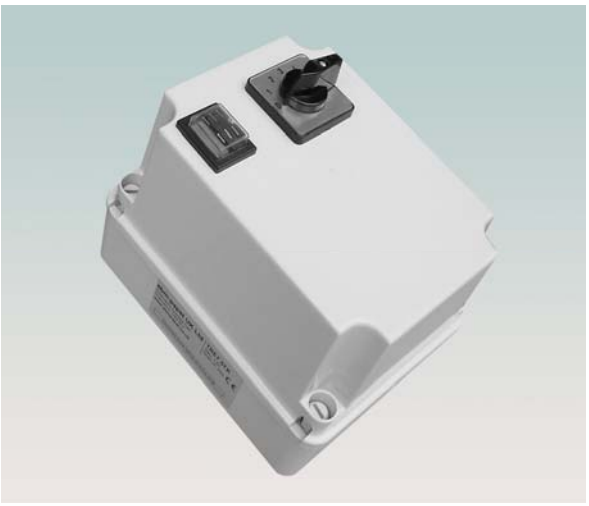
Controller options			Dimensions							
DOL	Elec	Trans	A	B	C	D	E	F	G	H
-*	REE10	TRE1.5	370	320	7	254	265	49	73	6
TFE2	REE10	TRE1.5	430	380	9	345	355	62	78	11
TFE2	REE10	TRE1.5	485	435	9	388	400	68	79	16
TFE2	REE30	TRE1.5	540	490	9	417	425	86	79	16
TFE2	REE30	TRE4	576	535	11	465	480	86	81	16
TFE2	REE50	TRE7.5	656	615	11	515	535	102	95	16
TFE2	REE30	TRE4	805	750	11	653	696	130	60	20

* only suitable for line currents between 0.4-10amps



TRE and TRE..TK Series single-phase transformer controllers



General remarks: The TRE and TRE..TK series of transformer controllers for single phase AC fans and motors, provide energy saving speed control without the creation of additional motor noise which you get with most electronic controllers. Vacuum impregnation further reduces electrical noise from the transformers. Available for total load current of up to 7.5 Amps, a rotary switch selects one of 5 different voltages.

The standard product has a simple fan/motor connection without provision for thermal overload protection. Use of a separate motor protection device is recommended.

The TK version has connections for motor thermal overload protection. When connected, an overheat condition will cause the motor supply to trip off. It can only be restarted after the motor has cooled and either power disconnected from the controller or the selector switch cycled through the off setting.

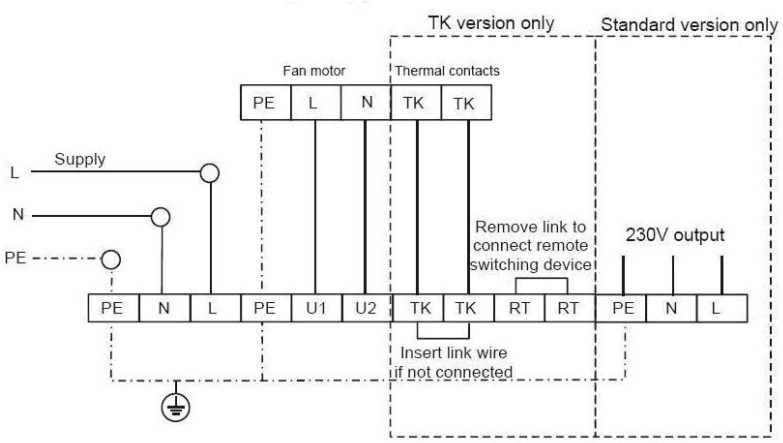
Nominal data	Nominal voltage	Frequency	Max output	Thermal overload protection	Mass	Max. amb. temp	Protection rating	Width	Height	Depth	Mounting hole spacing	Mounting hole diameter
Type	V	Hz	A		kg	°C		mm	mm	mm	mm	mm
TRE2	230	50/60	2.0	No	3.5	40	IP54	200	150	150	144 x 98	5.5
TRE4	230	50/60	4.0	No	6.0	40	IP54	200	150	150	144 x 98	5.5
TRE7.5	230	50/60	7.5	No	7.5	40	IP54	200	150	150	144 x 98	5.5
TRE2TK	230	50/60	2.0	Yes	3.5	40	IP54	200	150	150	144 x 98	5.5
TRE4TK	230	50/60	4.0	Yes	6.0	40	IP54	200	150	150	144 x 98	5.5
TRE7.5TK	230	50/60	7.5	Yes	7.5	40	IP54	200	150	150	144 x 98	5.5

Subject to alterations Please contact us for higher rated controllers.

Specifications
- Output Voltage Steps: 105/130/145/160/230V
- Unregulated 230V switched output for dampers etc.
- Vacuum resin impregnated transformers
- Conforms to EN61558-1 and EN61558-2-13

TK Versions
- Motor protection by connection of motor thermal contacts
- Power on (Green) and Overheat (Red) indication lamps
- Remote switching through thermostat connection

Wiring diagram



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Speed controllers - REE

- **General remarks:** These manual, single-phase electronic control devices provide a simple solution to speed controlling single or multiple fans, it has a manual dial, which can alter the fan speed from a minimum setting (factory set to approx 20%) to 100%.

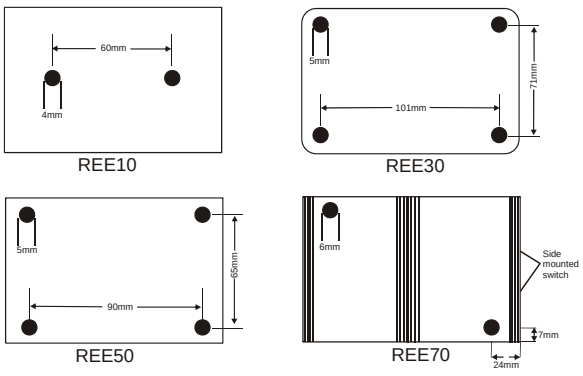
Features:

- 230V 50Hz single phase AC input
- Current rating options - 1, 3, 5 & 7 Amps
- On/Off switch
- Internal pre-set for minimum speed
- Two wire control - for simple connection
- Three wire control - lower motor running temperature (increased fan life) and improved speed adjustment response.

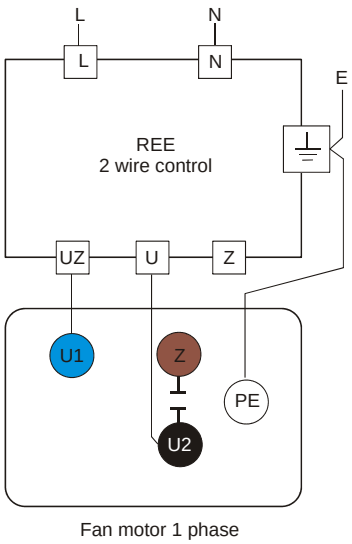
Nominal data	Nominal voltage	Frequency	Max .current rating	Max .amb.temp.
Type	VAC	Hz	A	°C
REE10	230	50	1	40
REE30	230	50	3	40
REE50	230	50	5	40
REE70	230	50	7	40

Subject to alterations

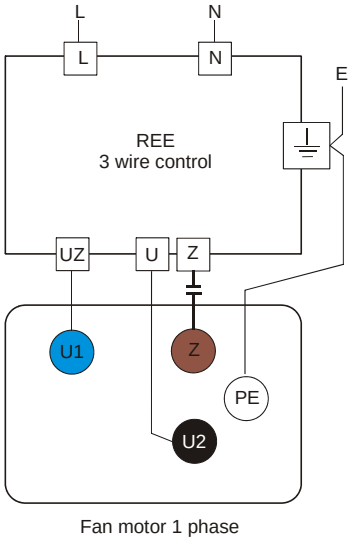
Rear mounting diagram



Connection diagram
Line voltage 230V 50/60 Hz



Fan motor 1 phase



Fan motor 1 phase

Electromagnetic compatibility
These controllers comply with the relevant EC council Directives, EMC Directive 89/336/EEC and amendment 92/31/EEC. Applied Harmonised standards BS EN61000-6-3 and BS EN 61000-6-4.

EC axial fans integrated electronics

Size range Ø 315 to Ø 630

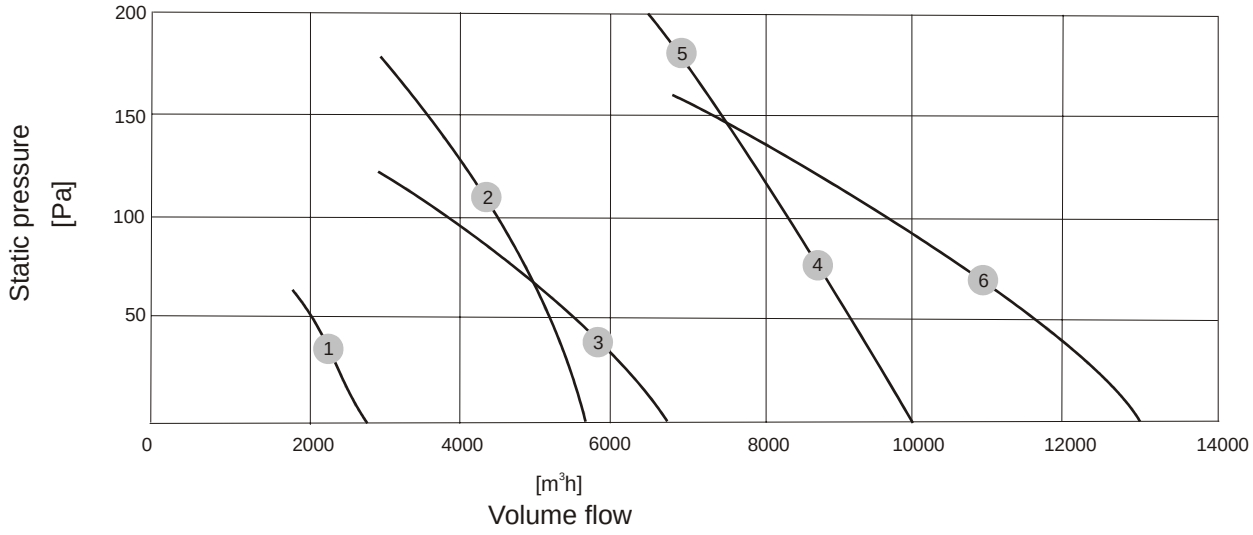
- **General remarks**: EC axial fans with an external rotor motor offering the advantage of matched motor and impeller in a compact space saving design. Mains input direct to fan. Impellers are either sheet steel (coated black) or fibreglass reinforced PA6 plastic.
- **Motors**: IP44 rated, sealed-for-life and maintenance free
- **Control signal**: 0-10V/PWM

Nominal data		Single phase (1) Three phase (3)	Nominal voltage	Frequency	Airflow	Speed/rpm	Max. power input	Max. current draw	Max. back pressure	Max sound pressure @ 3m	Perm. amb. temp.	Mass
Order code		Ø	VAC	Hz	m^3/h	min^{-1}	W	A	Pa	dB(A)	°C	kg
W3G315-DA58-11	1	1	200-277	50/60	2670	1500	100	0.70	65	56	-25..+60	3.5
W3G400-DA22-72	2	1	200-277	50/60	5600	1690	390	2.50	180	70	-25..+60	5.2
W3G450-DA35-72	3	1	200-277	50/60	6700	1450	500	3.20	140	68	-25..+60	5.5
W3G500-CE33-11	4	1	200-277	50/60	10000	1430	930	4.20	200	69	-25..+60	16.2
W3G500-CE33-01	5	3	380-480	50/60	10000	1430	930	2.20	200	69	-25..+60	16.2
W3G630-CE31-01	6	3	380-480	50/60	12800	1000	790	1.80	160	68	-25..+60	20.4

Subject to alterations

Please contact us for higher rated controllers.

Characteristics



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Dimensions

A	B	C	D	E	F	G	
355	72.5	380	430	-	11	9Ø	Fig 1
425	98	490	540	-	12	9Ø	Fig 1
480	100	535	576	-	14	11Ø	Fig 1
417	164	615	655	120	16	11Ø	Fig 2
517	164	615	655	120	16	11Ø	Fig 2
653	215	750	805	150	20	11Ø	Fig 2

Subject to alterations

Detail drawing for indication purposes only

Fig 1 (W3G315, 400 and 450 only)

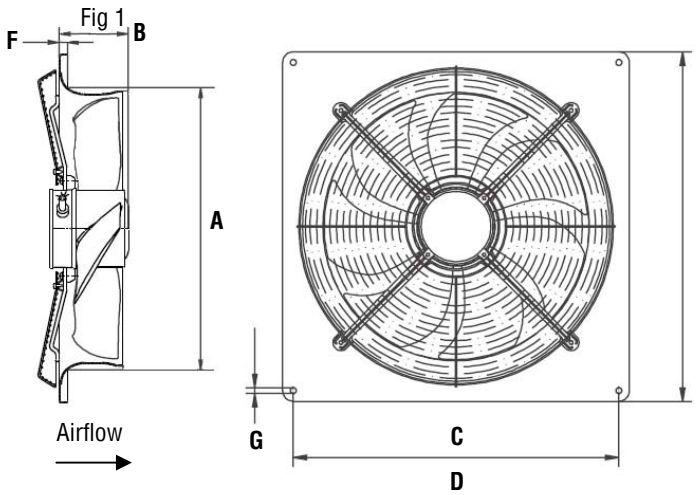
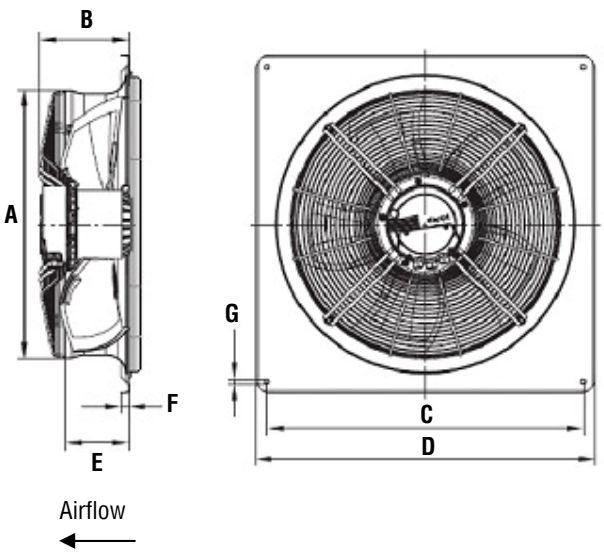


Fig 2 (W3G500 and 630 only)



EC controllers

- **General remarks**: The EC controllers are designed for use with the full range of ebm-papst ECi (Electronically Commutated with integrated electronics) fans. They are powered via the DC output from the fan, and provide a 0-10V signal to enable infinitely-variable speed control. The controllers also enable speed measurement of the fan using a multimeter with a frequency measuring facility (where a tacho output is provided from the fan.

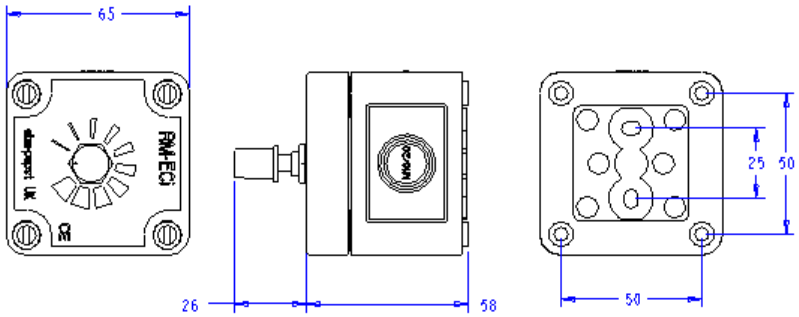
- **RMECi**: Input voltage 10VDC (supplied from fan); maximum ambient temperature 50°C; IP rating IP54; cable entries 4xM16 or M20; mounting holes suitable for 4mm fixing; output voltage range 0-10 VDC.

- **CN1003**: Input voltage 10 VDC (supplied from fan); maximum ambient temperature 50°C; mounting hole diameter 10mm; output voltage range 0-10 VDC.

Nominal data	Supply voltage	Current draw max.	Max. amb. temp.	Mass
Type	VDC	mA	°C	kg
RM-ECi	10	1.1	50	0.1
CN1003	10	1.1	50	0.05

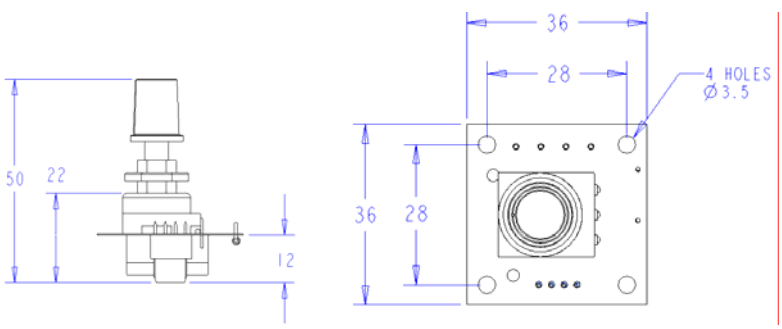
Subject to alterations

Characteristics



Installation

1) Install in a dry sheltered position. Do not install in close proximity to heat sources
2) The maximum ambient temperature of the controller must not exceed 50°C



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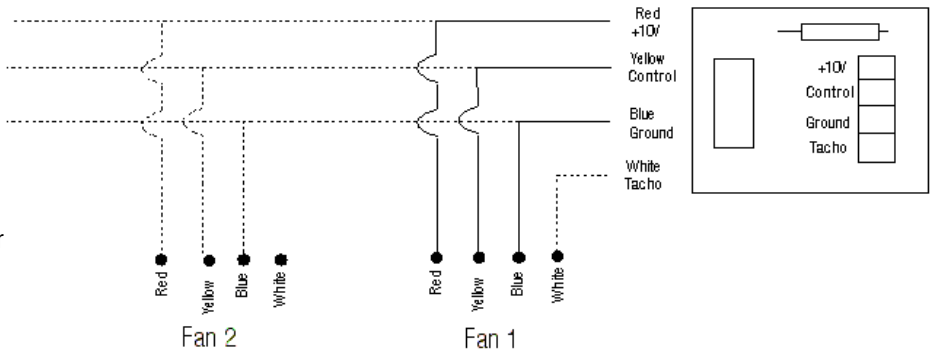
Fan

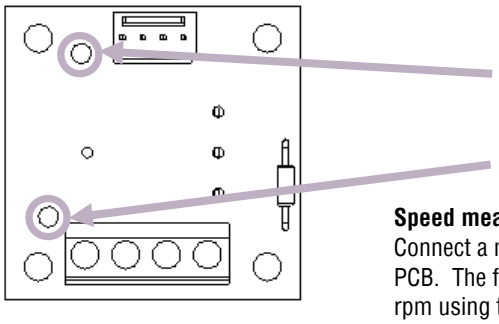


Notes:

1) A single controller can be used to control multiple fans at the same speed setting
2) Connection to the controller is via four screw terminals or a Molex connector (range of connection leads available)
3) When the tacho wire is required this can only be connected to one fan (see note A).

Note A

Please note that under rare operating conditions it is possible that leaving the tacho wire permanently connected may lead to a small reduction in the maximum speed.



Speed measurement

Connect a multimeter set to measure frequency on the probe points (marked + and -) on the PCB. The fan provides 1 pulse per revolution so the measured frequency can be converted to rpm using the following equation:

RPM = Frequency (Hz) x 60

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EC-PRESS 0-10V Closed Loop Pressure Controller

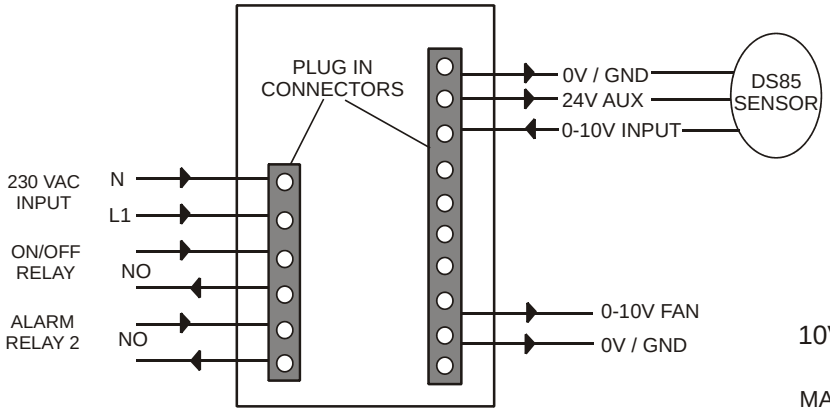
- **General remarks:** EC-PRESS is a PI controller for use with ebm-papst EC fans and other products using a 0-10V control input for constant pressure control. When used with an appropriate differential pressure transmitter it will maintain a pre-programmed pressure by varying fan speed in relation to system pressure.

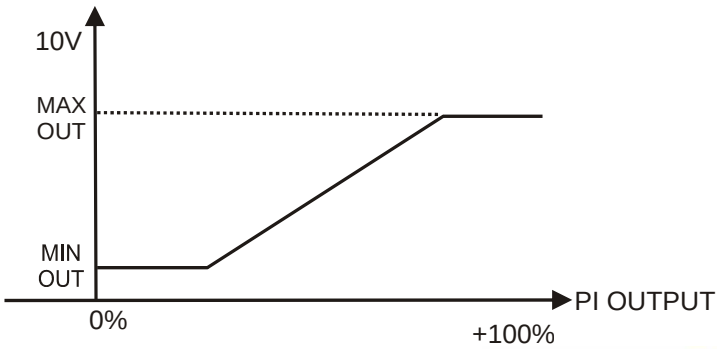
Additional features:
- Sensor ranges 0-50, 0-200, 0-500 and 0-1000 Pa
- Auxilliary DC supply out 24VDC / 20mA +/-30%
- Plug-in connectors for easy wiring
- Digital display of system pressure
- Over and under pressure alarm relay

Nominal data	Supply voltage	Control range	Max .amb. temp.	Min amb. temp.	Protection rating	Weight	Width	Height	Depth	Mounting hole spacing	Current	Output
Type		Pa	°C	°C		kg	mm	mm	mm	mm	mA	V DC
EC-PRESS	230V 50Hz	0-1000	45	-5	IP54	0.4	80	130	60	113x63	-	-
DS85-50	24V	0-50	50	0	IP65	0.09				-	12	0-10
DS85-200	24V	0-200	50	0	IP65	0.09				-	12	0-10
DS85-500	24V	0-500	50	0	IP65	0.09				-	12	0-10
DS85-1000	24V	0-1000	50	0	IP65	0.09				-	12	0-10

Subject to alterations

Connection Diagram





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EC-TEMP 0-10V Closed Loop Temperature Controller

- **General remarks:** EC-TEMP is a proportional temperature controller for use with ebm-papst EC fans and other products requiring a 0-10V control input. The measured temperature is controlled by varying the fan speed in relation to a set point and XP-Band range. There are two independently programmable 0-10V outputs which can be offset from each other to control one fan, two fans or a fan plus suitable auxiliary device (shutters, dampers etc).

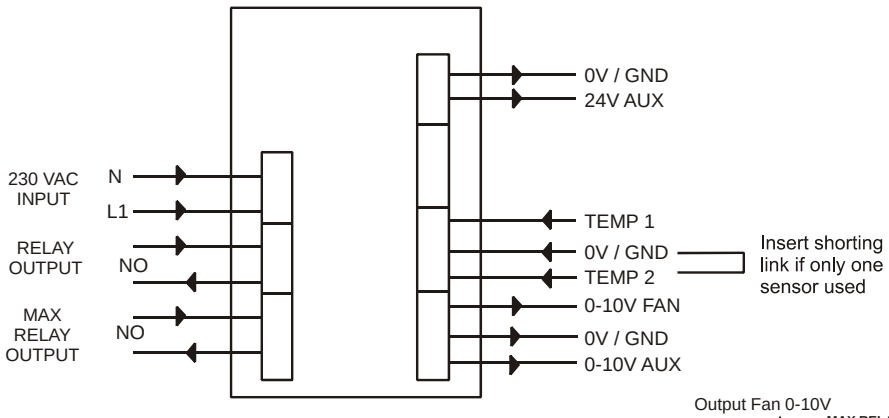
Additional features:
- Programmable over-temp alarm relay
- Min and max fan speed setting
- Display of min, max and actual temperature
- LEDs indicating relay operation and maximum demand
- Plug-in connectors for easy wiring
-

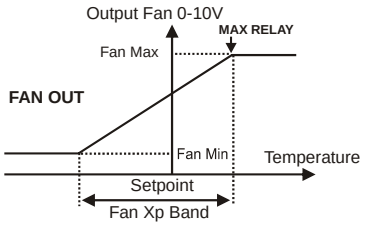
Nominal data	Supply voltage	Control range	XP band range	Max .amb. temp.	Min amb. temp.	Protection rating	Weight	Wdith	Height	Depth	Mounting hole spacing
Type		°C	°C	°C	°C		kg	mm	mm	mm	mm
EC-TEMP	230V 50Hz	0-50	0-10	45	-5	IP54	0.4	80	130	60	113x63
KTY-1*											

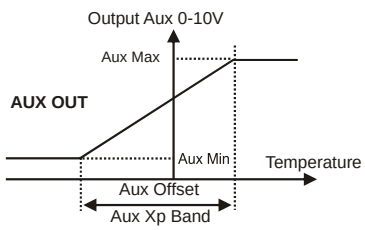
Subject to alterations

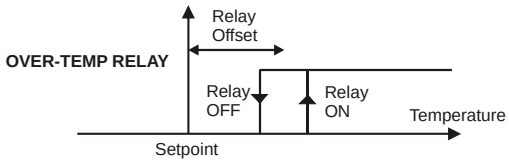
* One temperature sensor included. Second sensor must be ordered separately.

Connection Diagram









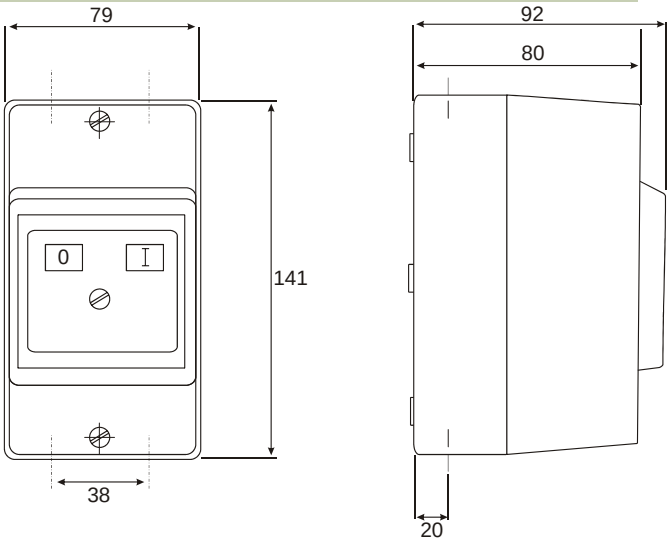
Accessories - Motor protection device

- Input for thermal overload protection
- IP55 enclosure
- No auxiliary contacts
- Setting range 0.4-10.0 Amp

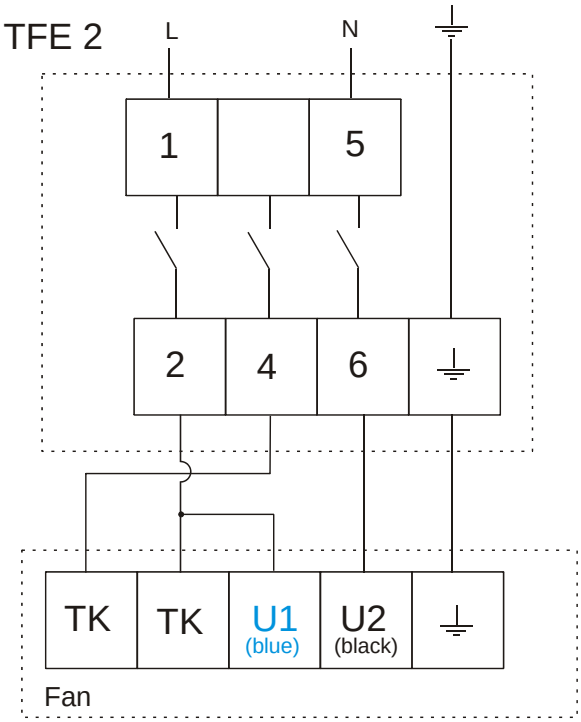
Nominal data	Nominal voltage	Frequency	Current	Weight
Type	V	Hz	Amps	kg
TFE2	230	50	10	0.405

Subject to alterations

Dimensions



Characteristics



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Louvre shutters & side wall inlet

Louvre shutters

- Automatic plastic louvre shutter with self adjusting flaps
- Manufactured with high standard ecologically friendly plastic material
- Streamlined shape and durability
- Outdoor weather resistant and UV stabilised
- Suitable for an operating temperature range of –30°C to +70°C
- Each louvre shutter is individually carton packed
- Set of four fastening screws included
- WSK50 and below are not the split configuration shown
- Individual louvre blades can be supplied in 4m lengths

Side wall inlet

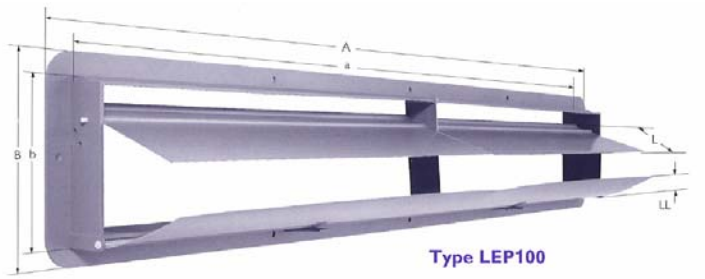
The LEP air inlet grille features a counterbalanced flap which opens in proportion to increased air speed but minimises draughts. The extended shape at the bottom of the grille deflects the air upward as it enters the building to mix with the warmer air inside, reducing the dumping of cold air onto the livestock.
The system is manufactured from UV stabilised ecologically friendly plastic suitable for temperature range –30°C to +70°C.

Nominal data

Type	Fan diameter mm	A	B	C	a	b	L	LL
WSK25	250	294	232	26	-	-	-	-
WSK30	315	347	276	26	-	-	-	-
WSK35	350	397	310	26	-	-	-	-
WSK40	400	459	364	26	-	-	-	-
WSK45	450	501	395	31	-	-	-	-
WSK50	500	549	445	31	-	-	-	-
WSK63	630	696	626	31	-	-	-	-
WSK71	710	760	692	40	-	-	-	-
WSK80	800	840	772	40	-	-	-	-
LEP	-	570	190	-	505	125	120	85
LEP100	-	1070	170	-	1020	125	120	85

Subject to alterations

Due to potential high air velocity these shutters should not be used with 315mm 2 pole fans

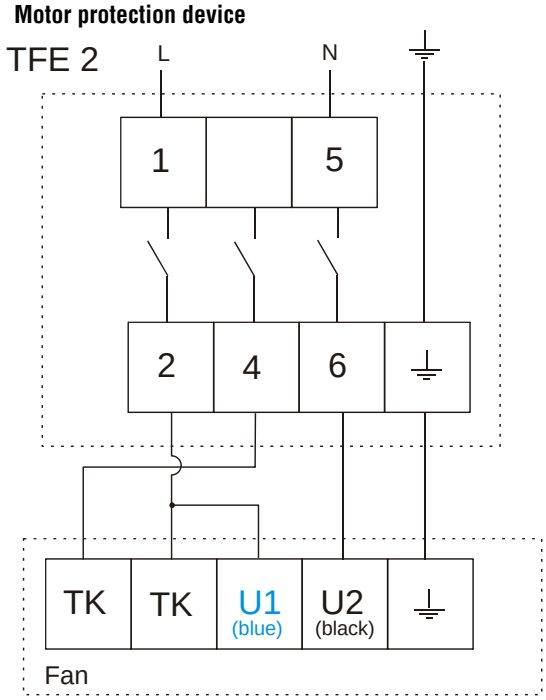


Type LEP100

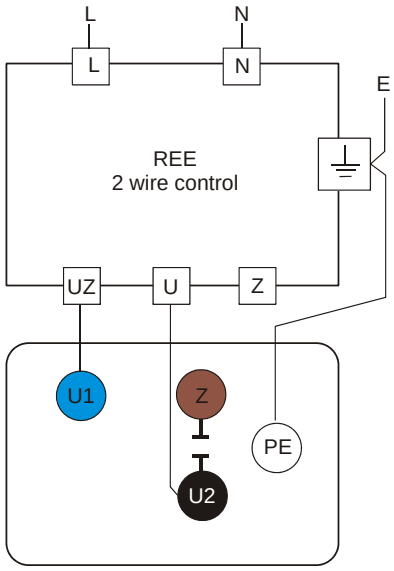
WSK63

AC wiring diagrams

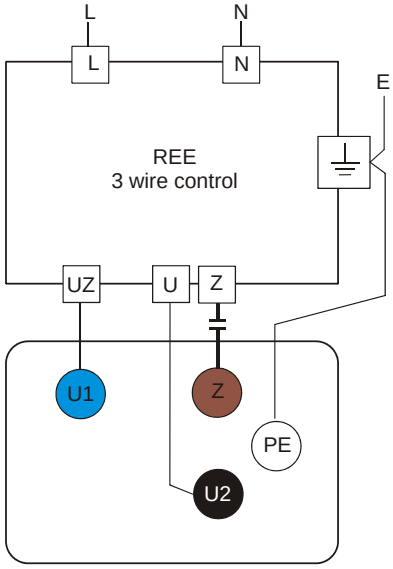
Motor protection device



Electronic control (REE)

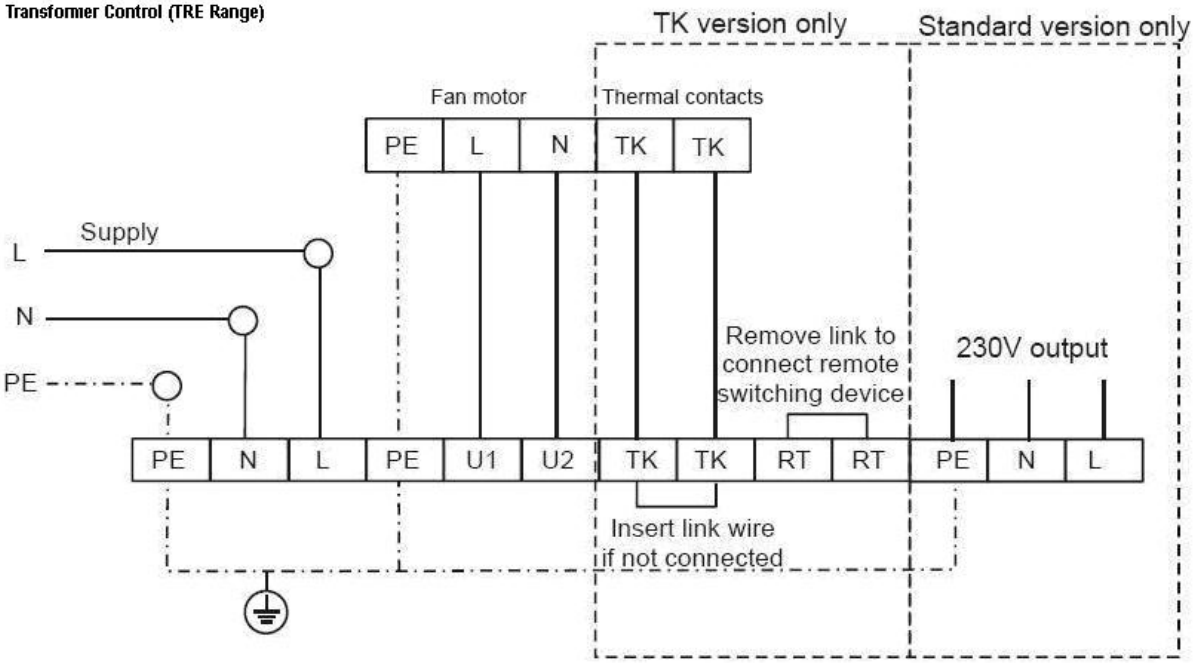


Fan motor 1 phase



Fan motor 1 phase

Transformer Control (TRE Range)



Notes:

- For full installation details refer to the installation and maintenance instructions supplied with the product.
- A suitable motor protection device MUST be used on all fan installations to validate the warranty.
- Motor thermal contacts (TK) MUST be used to validate the warranty.

Standards:

European Regulations - The fans comply with the following directives: EEC Directive 72/23/CEE (LVD as amended by 93/68/EEC and EEC Directive 89/336/CE (EMC Directive) as amended by 92/31 EEC and 93/68 EECF. The fans are designed for incorporation under EEC Directive 89/37/CE (Mechanical Directive).

All AC motors up to size 074 (inclusive) comply with the specifications in EN60335-1, Motors from size 084 and above comply with the specifications listed in EN60034-1

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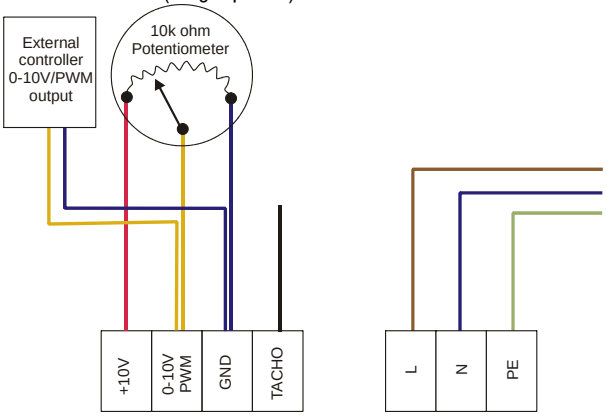
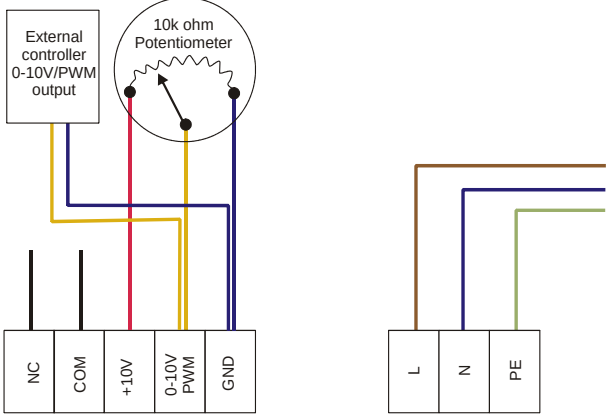
FAN WIRING DIAGRAMS

M3G074 Motor (single phase)

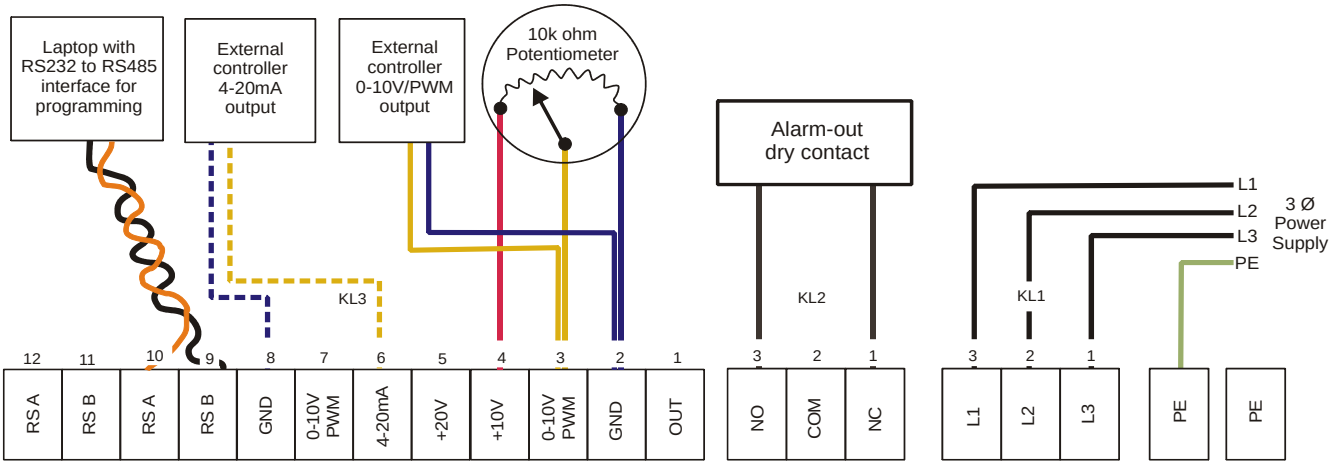


M3G084 Motor (single phase)



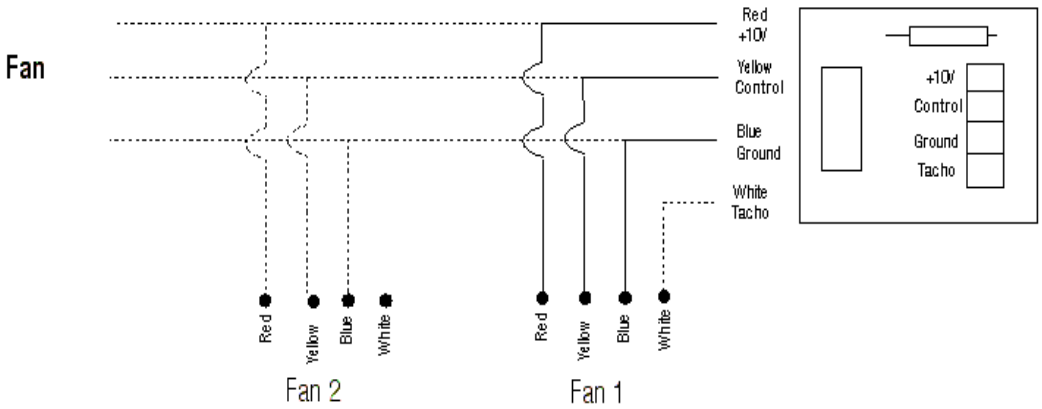
For single phase motor, apply single phase supply as shown above.

M3G112 Motor (3 phase)

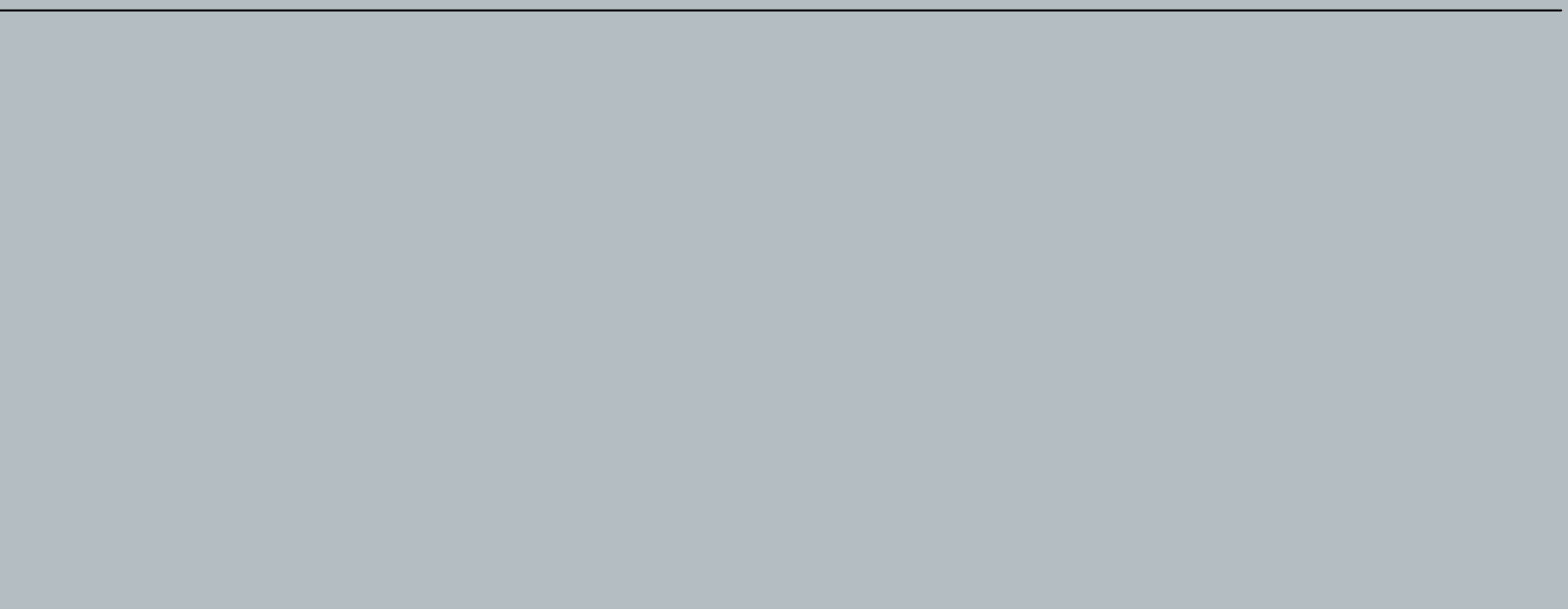


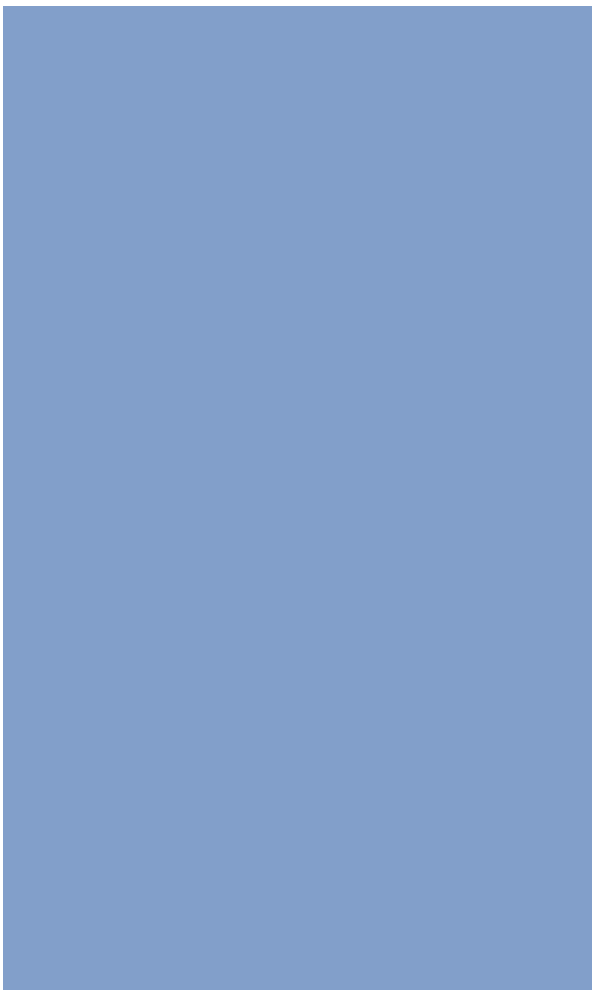
CONTROLLER WIRING DIAGRAMS

RM-ECi & CN1003



EMC Standards
Interference Emission EN61000-6-3
Interference Immunity EN61000-6-2
Harmonics EN61000-2-2/3





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