redge

CLEANAIR LX

1000 - 100000 m3/h

MODULAR AIR HANDLING UNIT



WIRING OF FAN MOTORS & AIRFLOW METER INSTRUCTIONS

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MOTOR WIRING

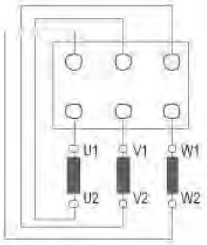
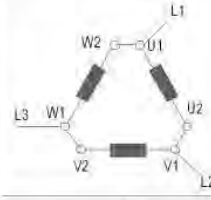
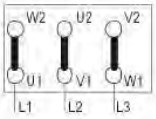
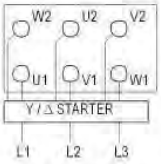
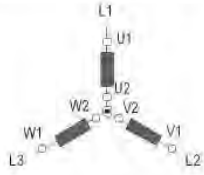
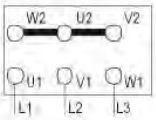
Note:

The wiring diagrams of this manual are generic.

For safety, always check also the diagram attached to the motor terminal box.

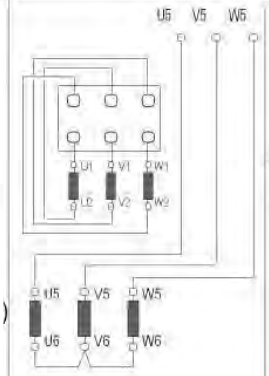
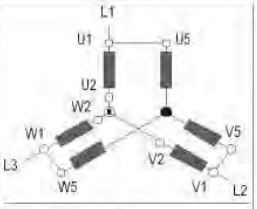
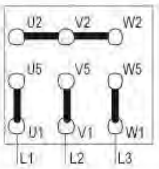
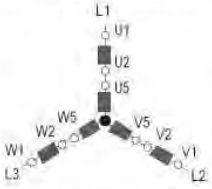
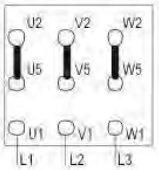
WIRING OF SINGLE SPEED MOTORS WITH D.O.L OR STAR DELTA START UP

TWO VOLTAGE TYPE MOTORS WITH Y OR Δ START (6 terminals)

Voltages and connections	Internal wiring diagrams	Principle sketch	External wiring diagrams	
			Direct start	Y/Δ start
Tension : U **Wiring : Δ** **(at lower voltage)** **Es. : 230V/Δ**				
Tension : U√3 **Wiring : Y** **(at higher voltage)** **Es. : 400V/Y**				

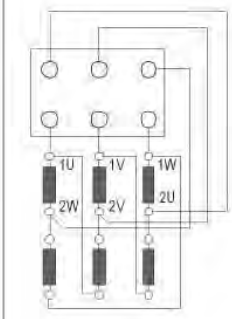
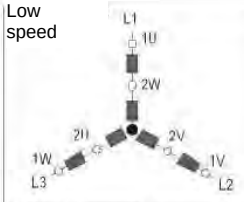
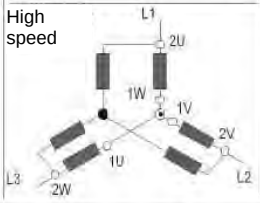
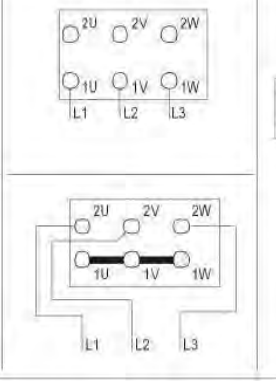
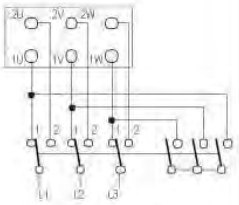
WIRING OF SINGLE SPEED MOTORS FOR PARALLEL/SERIES WIRING

TWO VOLTAGE TYPE MOTORS WITH SERIAL/PARALLEL WIRING (9 terminals)

Voltages and connections	Internal wiring diagrams	Principle sketch	External wiring diagrams	
			Direct start	Y/Δ start
Tension : U **Wiring : YY** **(at lower voltage)** **Es. : 230V/YY**				
Tension : 2U **Wiring : Y** **(Star at the maximum voltage)** **Es. : 460V/Y**				

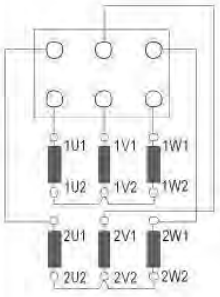
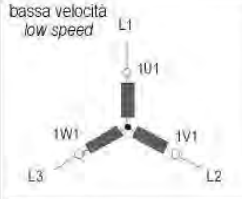
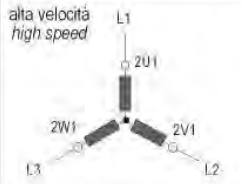
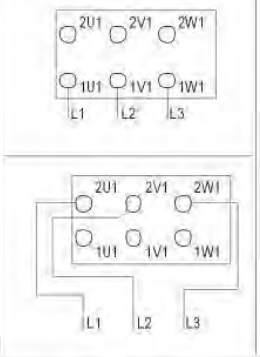
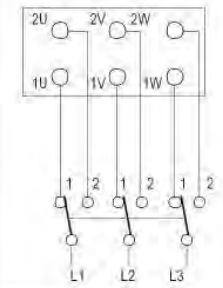
WIRING OF TWO SPEED DAHLANDER MOTORS WITH D.O.L. START UP

SINGLE VOLTAGE TYPE MOTORS WITH SINGLE WIRING (6 terminals)

Voltages and connections	Internal wiring diagrams	Principle sketch	External wiring diagrams	
			Manual	With changeover
Dahlander o PAM centrifugal machines 6 terminals (internal Y) Y - YY		Low speed  High speed 		 High speed

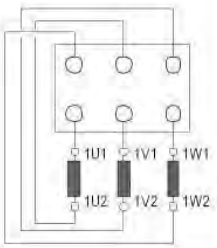
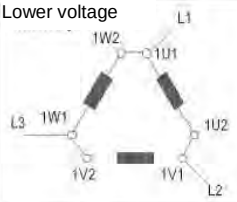
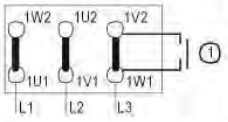
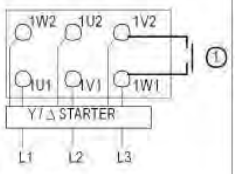
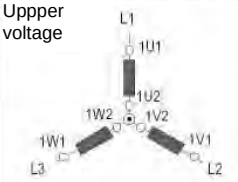
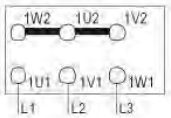
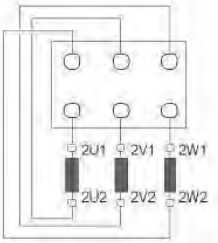
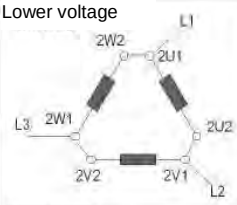
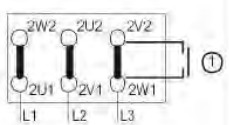
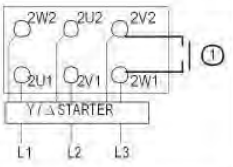
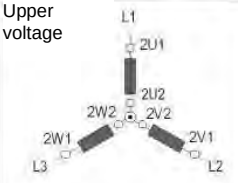
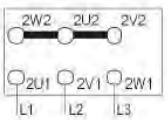
WIRING OF TWO SPEED MOTORS WITH DOUBLE WINDINGS D.O.L. START UP

SINGLE VOLTAGE TYPE MOTORS WITH DOUBLE WIRING (6 terminals)

Tensioni e collegamenti	Schemi dei collegamenti interni	Schemi di principio	Schemi dei collegamenti esterni con commutatore Manuale	
Due avvolgimenti separati 2 x 3 morsetti (Y interna)		bassa velocità *low speed*  alta velocità *high speed* 		 bassa velocità *low speed*

WIRING OF TWO SPEED MOTORS WITH DOUBLE WINDINGS D.O.L. OR STAR-DELTA START UP

TWO VOLTAGE TYPE MOTORS WITH Y, Δ WIRING. (12 terminals)

Voltages and connections	Internal wiring diagrams	Principle sketch	External wiring diagrams	
			Manual	With changeover
Tension : U **Wiring : Δ** **(at lower voltage)** **Es. : 230V/Δ**	Low speed 	Lower voltage 		
Tension : U√3 **Wiring : Y** **(at higher voltage)** **Es. : 400V/Y**		Uppper voltage 		
Tension : U **Wiring : Δ** **(at lower voltage)** **Es. : 230V/Δ**	High speed 	Lower voltage 		
Tension : U√3 **Wiring : Y** **(at higher voltage)** **Es. : 400V/Y**		Upper voltage 		

NOTE :

In order to avoid secondary currents, it is recommended to open the triangle for the velocity not powered.

(1) Security contact opened during two velocities working

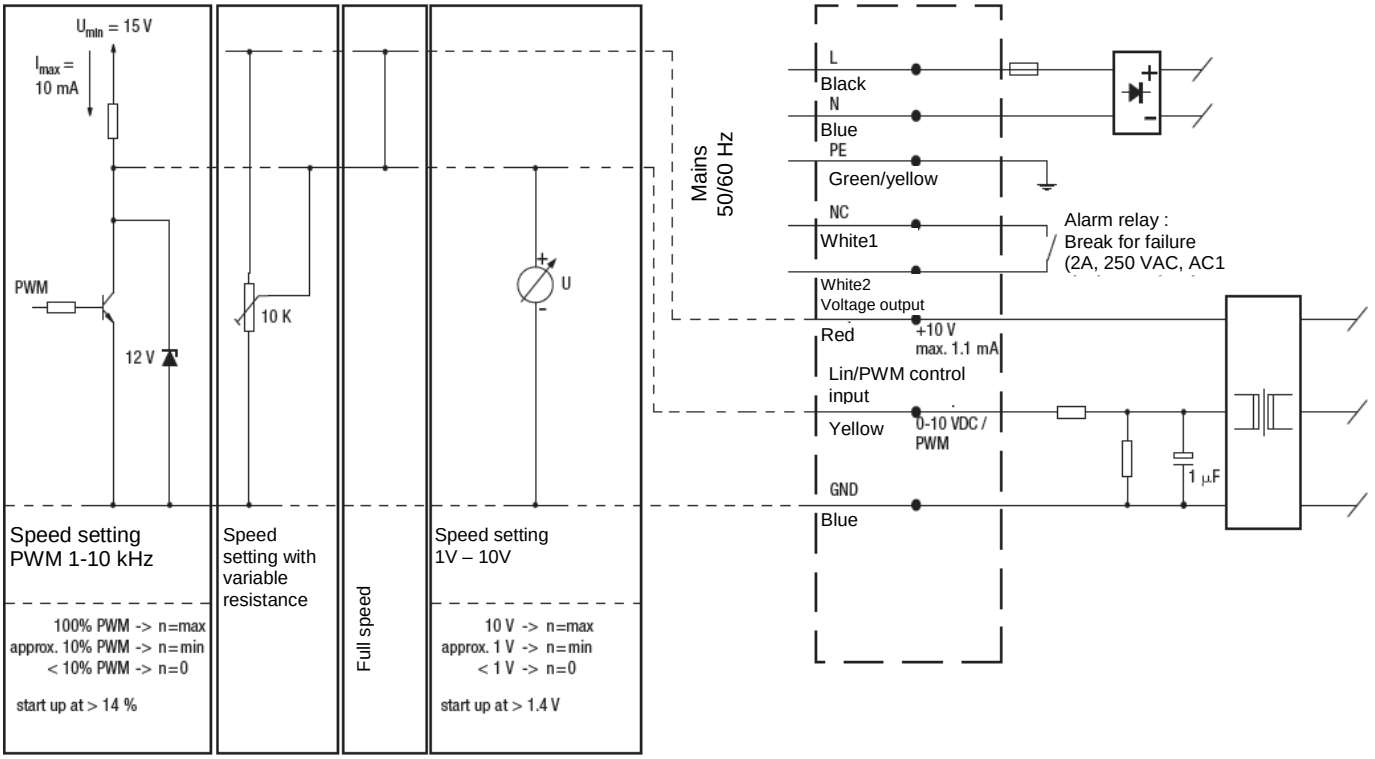
WIRING OF EBM-PAPST EC FANS

ebmpapst

SERIES RADIPAC K3GxxxA e K3GxxxB			SERIES RADIPAC 2 K3GxxxP		
Fan	**Diagram**	**Page**		**Diagram**	**Page**
K3G250-AT39-72	K1	6	K3G250-PR04-H5	P5	12
K3G250-AV29-B2	L7	7	K3G250-PR17-I5	P5	12
K3G250-AY11-C2	P2	8	K3G250-PR02-J5	P6	13
K3G280-AT04-72	K1	6	K3G280-PR03-H5	P5	12
K3G280-AU06-B2	L7	7	K3G280-PR04-I5	P5	12
K3G280-AU11-C2	L6	9	K3G280-PS10-J5	P6	13
K3G310-AX52-90	L6	9	K3G310-PT08-J4	P8	14
K3G310-AX54-22	L9	10	K3G310-PH38-05	M3	11
K3G310-BB49-02	M3	11	K3G310-PH58-07	M3	11
K3G310-AZ88-02	M3	11	K3G355-PJ75-05	P8	14
K3G355-AX56-90	L6	9	K3G355-PH49-05	M3	11
K3G355-AY43-22	L9	10	K3G355-PI93-05	M3	11
K3G355-AY40-02	M3	11	K3G400-PI92-05	M3	11
K3G355-BC92-02	M3	11	K3G400-PA27-75	M3	11
K3G400-AY87-02	M3	11	K3G450-PI86-05	M3	11
K3G400-AQ23-01			K3G450-PA23-75	M5	15
K3G400-AQ31-01			K3G450-PB24-05	M3	11
K3G450-AY86-02	M3	11	K3G500-PA23-75	M5	15
K3G450-AQ24-01			K3G500-PB33-05	M3	11
K3G450-AZ30-01			K3G560-PB31-75	M5	15
K3G500-AP25-01	M3	11	K3G560-PC04-05	M3	11
K3G500-AP24-01					
K3G500-AQ33-01					
K3G560-AP23-01	M3	11			
K3G560-AQ-24-01					
K3G630-AR02-01	M3	11			
K3G630-AS05-01					
K3G710-AR03-01	M3	11			
K3G710-AS06-01					
K3G800-AR08-01	M3	11			
K3G800-AS07-01					
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K3G900-AS08-01					
K3GZ50-AQ11-01	M3	11			

WIRING DIAGRAM

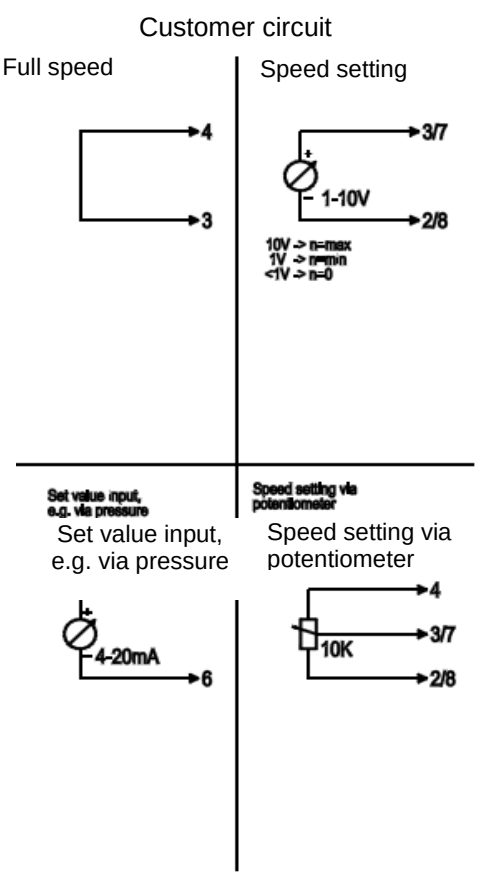
Notes on various control possibilities and their applications

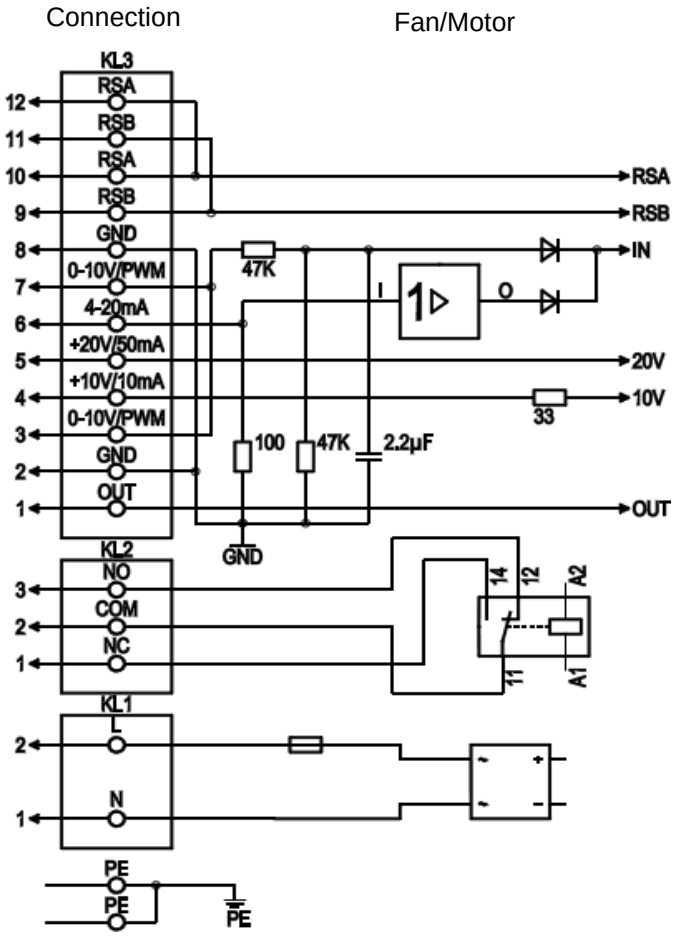


Line 1					Line 2		
L	**N**	**PE**	**NC**	**COM**	**+10V**	**0-10V PWM**	**GND**
Black	Blue	Green/Yellow	White 1	White 2	Red	Yellow	Blue

Line 1			Line 2		
Connection	**Colour**	**Assignment/ Function**	**Connection**	**Colour**	**Assignment/ Function**
L	Black	Mains 50/60 Hz, phase	+10V	Red	Voltage output +1V / max 1.1 mA
N	Blue	Mains 50/60 Hz, neutral	0-10V / PWM	Yellow	Control input (impedance 100 kΩ)
PE	Green/yellow	Protective earth	GND	Blue	GND
NC	White1	Status relay, floating status contact, open if failure			
COM	White2	Status relay, floating status contact, changeover contact, common connection (2A, 250V, Min. 10 mA, AC1)			

WIRING DIAGRAM

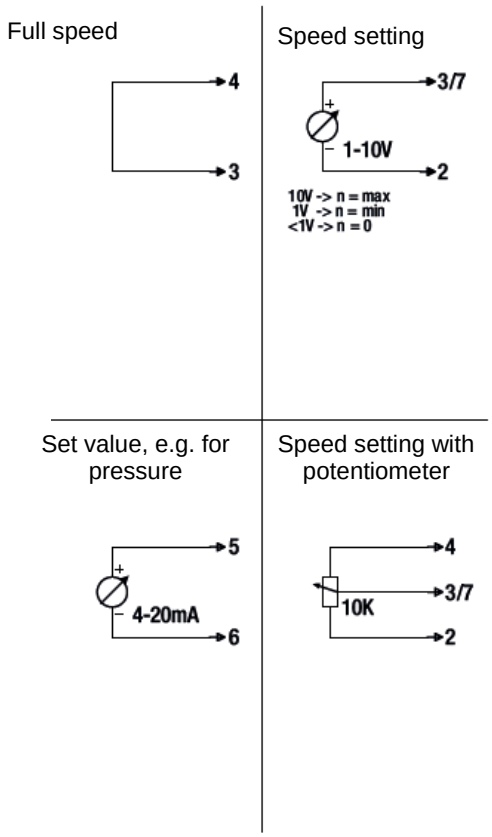




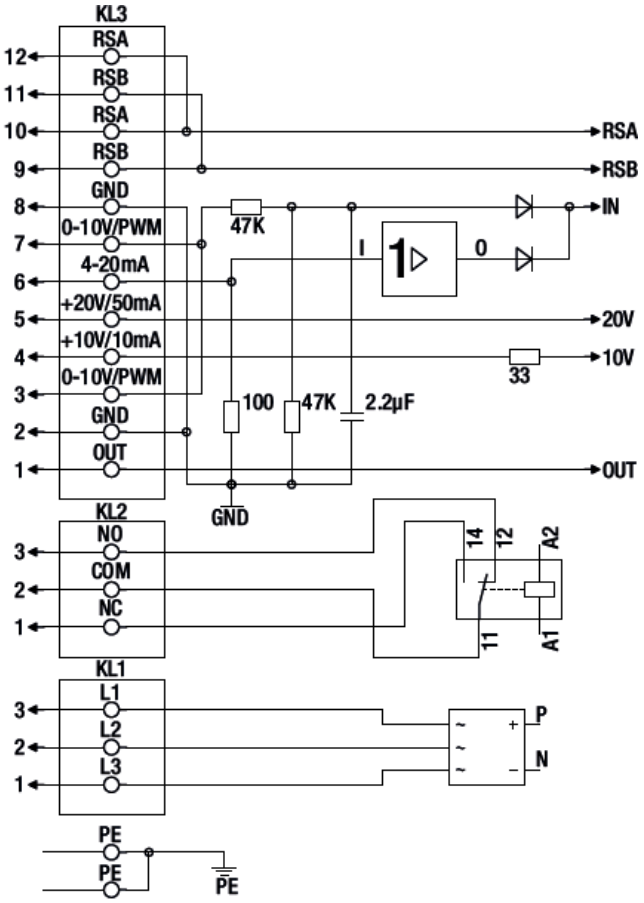
KL3											KL2			KL1					
RS A	RS B	RS A	RS B	GND	0-10V PWM	4-20 mA	+20V	+10V	0-10V PWM	GND	OUT	NO	COM	NC		L		N		PE

Connector	Connection	Assignment/Function	Connector	Connection	Assignment/Function
PE	PE	Protective earth	KL3	OUT	Master output 0-10V / max 3 mA
KL1	N	Mains 50/60 Hz, neutral		GND	GND
	L	Mains 50/60 Hz, phase		0-10V / PWM	Control / Actual value input (impedance 100 kΩ)
KL2	NC	Status relay, floating status contact, open if failure		+10V	Supply for external potentiometer, 10 VDC (+10%), max. 10mA
	COM	Status relay, floating status contact, changeover contact, common connection (2A, 250V, Min. 10 mA, AC1)		+20V	Supply for external sensor, 20 VDC (+/-20%), max. 50mA
	NO	Status relay, floating status contact, closed if error		4-20 mA	Control / Actual value input
				0-10V / PWM	Control / Actual value input
				GND	GND
				RSB	RS485 interface for ModBus RTU, RSB
				RSA	RS485 interface for ModBus RTU, RSA

WIRING DIAGRAM



Customer circuit

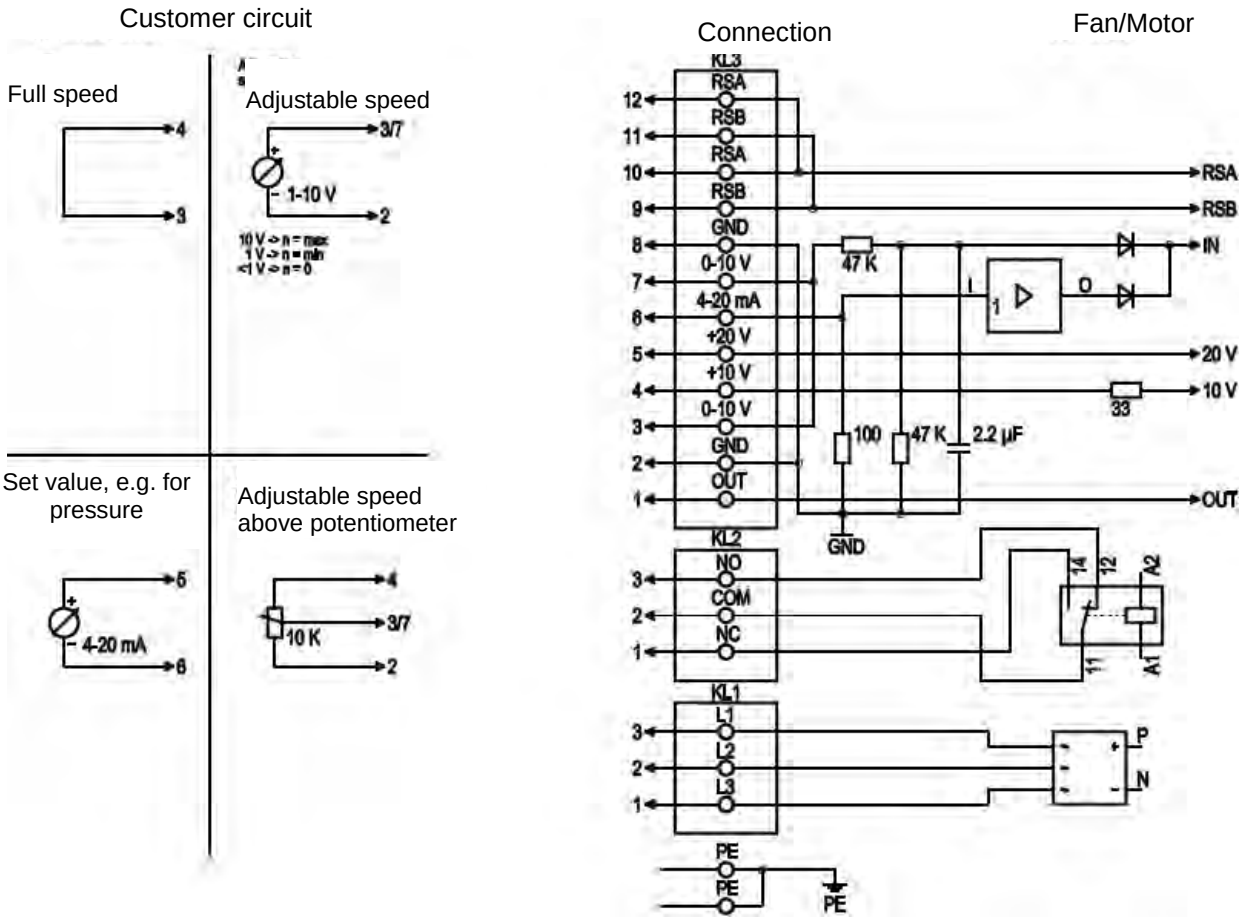


Connection

Fan

Connector	PIN	Connection	Assignment/Function
PE		PE	Protective earth, PE connection
KL1	1/2/3	L1, L2, L3	Main supply connection, supply voltage 3-380V-480 VAC, 50/60 Hz
KL2	1	NC	Status relay, floating status contact. Open if failure
	2	COM	Status relay, floating status contact, changeover contact, common connection (2A, 250V, Min. 10 mA, AC1)
	3	NO	Status relay, floating status contact. Closed if failure.
KL3	1	OUT	Analogue output 0-10V. Max. 3 mA, SELV, output of the actual motor duty cycle (PWM) : 1V corresponds to 10% PWM, 10V corresponds to 100% PWM
	2/8	GND	Signal ground for control interface KL3, SELV
	3/7	0-10V	Control input 0-10 VDC, Impedance 100 kΩ. Only as alternative to 4-20 mA input, SELV
	4	+10V	Fixed voltage output 10VDC (+/- 3%), Max. 10mA. Power supply for external devices (e.g. potentiometer), SELV
	5	+20V	Fixed voltage output 20VDC (+25% / -10%), Max. 50mA. Power supply for external devices (e.g. sensors), SELV
	6	4-20mA	Control input 4-20 mA, Impedance 100 kΩ. Only as alternative to 0-10V input, SELV
	9/11	RSB	RS485 interface for ModBus RTU, RSB
	10/12	RSA	RS485 interface for ModBus RTU, RSA

WIRING DIAGRAM



KL3											KL2			KL1					
RS A	RS B	RS A	RS B	GND	0-10V PWM	4-20 mA	+20V	+10V	0-10V PWM	GND	OUT	NO	COM	NC	L1		L2		L3	PE

Connector	Connection	Assignment/Function	Connector	Connection	Assignment/Function
PE	PE	Protective earth	KL3	OUT	Master output 0-10V / max 3 mA
KL1	L3	Mains, L3		GND	GND
	L2	Mains, L2		0-10V / PWM	Control / Actual value input (impedance 100 kΩ)
	L1	Mains, L1		+10V	Supply for external potentiometer, 10 VDC (+10%), max. 10mA
KL2	NC	Status relay, floating status contact, open if failure		+20V	Supply for external sensor, 20 VDC (+/-20%), max. 50mA
	COM	Status relay, floating status contact, changeover contact, common connection (2A, 250V, Min. 10 mA, AC1)		4-20 mA	Control / Actual value input
	NO	Status relay, floating status contact, closed if failure.		0-10V / PWM	Control / Actual value input
				GND	GND
				RSB	RS485 interface for ModBus RTU, RSB
				RSA	RS485 interface for ModBus RTU, RSA

WIRING DIAGRAM

KL3							KL2				KL1	
Din 2	Din 3	GND	Aln2 U	+20V	Ain2 I	Aout						
RS A	RS B	GND	Ain1 U	+10V	Ain1 I	Din1	NO	COM	NC	PE	L1	N

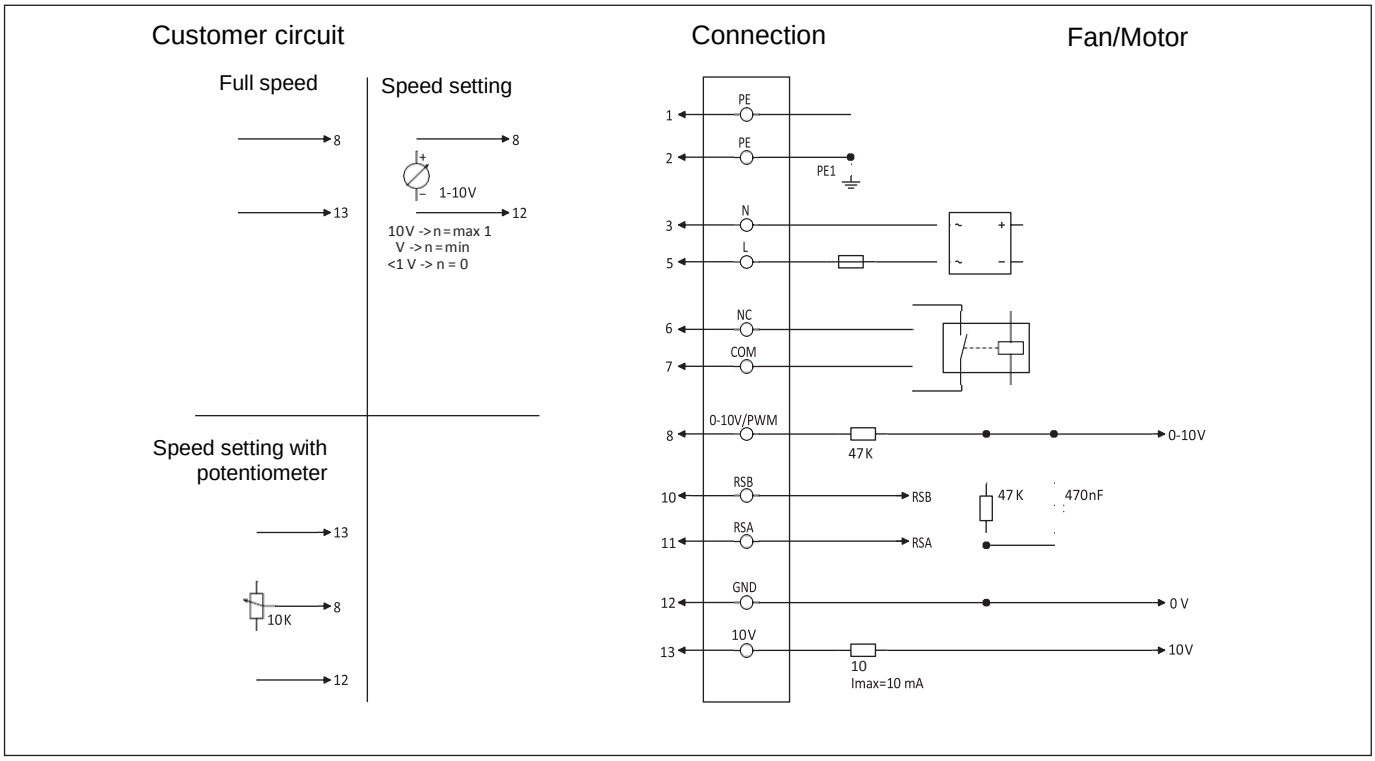
Connector	Connection	Assignment/Function
KL1	N	Mains, neutral
	L1	Mains, L1
PE	PE	Protective earth
KL2	NC	Status relay, floating status contact, open if failure.
	COM	Status relay, floating status contact, changeover contact, common connection (2A, 250V, Min. 10 mA, AC1)
	NO	Status relay, floating status contact, closed if failure.
KL3	Din1	Digital input 1 (enabling/disabling of electronics). Enabling : pin open or applied voltage 5 to 50 VDC Disabling : Bridge to GND or applied voltage < 1 VDC
	Ain1	Analogue set value input, 4-20 mA (Impedance 100 kΩ), only to be used as alternative to terminal Ain1 U
	+10V	Supply for external potentiometer, 10 VDC (3/- 3%), Max. 10 mA
	Ain1U	Analogue set value input, 0-10V (Impedance 100 kΩ), only to be used as alternative to terminal Ain1 I
	GND	GND
	RSB	RS485 interface for ModBus RTU, RSB
	RSA	RS485 interface for ModBus RTU, RSA
	Aout	Analog output 0-10V, max. 5mA, reading of current motor speed / current motor control factor.
	Ain2 I	Analog actual value input, 4-20 mA (Impedance 100 kΩ), only to be used as alternative to terminal Ain2 U
	+20V	Supply for external sensor, 20VDC (+25% / -10%), max. 40 mA
	Ain2 U	Analog actual value input, 0-10V (Impedance 100 kΩ), only to be used as alternative to terminal Ain2 I
	Din3	Digital input 3 (Switch Normal / Inverse). The preset effective direction of the integrated controller can be selected via BUS or via digital input Normal/Inverse. Normal : pin open or applied voltage 5 to 50 VDC Inverse : Bridge to GND or applied voltage < 1 VDC
	Din2	Digital input 2 (Switch Day / Night). The preset set of parameters can be selected via BUS or via digital input Day/Night. Day : pin open or applied voltage 5 to 50 VDC Night : Bridge to GND or applied voltage < 1 VDC

WIRING DIAGRAM

KL3							KL2				KL1		
Din 2	Din 3	GND	Ain2 U	+20V	Ain2 I	Aout							
RS A	RS B	GND	Ain1 U	+10V	Ain1 I	Din1	NO	COM	NC	PE	L1	L2	L3
1	2	3	4	5	6	7	1	2	3		1	2	3

Connector	PIN	Connection	Assignment/Function
KL1	1	L1	Mains supply connection, supply voltage 3-380-480 VAC; 50/60 Hz
	2	L2	
	3	L3	
PE		PE	Earth connection, PE connection
KL2	1	NO	Status relay, floating status contact, dose with error
	2	COM	Status relay, floating status contact, changeover contact, common connection (2 A, 250 V, min. 10 mA, AC1)
	3	NC	Status relay, floating status contact, open if failure
KL3	1	RSA	Bus connection RS485; RSA; MODBUS RTU
	2	RSB	Bus connection RS485; RSB; MODBUS RTU
	3/10	GND	Signal ground for control interface
	4	Ain1 U	Analogue input 1 (set value); 0-10 V; Ri= *100 Ω*; adjustable curves; only usable as alternative to input Ain1 I
	5	+10V	Fixed voltage output 10 VDC; + 10 V ±3 %; max. 10 mA; short circuit proof, power supply for external devices (e.g. potentiometer)
	6	Ain1 I	Analogue input (set value); 4-20 mA; Ri= 100 Ω; adjustable curve; only usable as alternative to input Ain1 U
	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 < 1V
	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
	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)
	11	Ain2 U	Analogue input 2; actual sensor value 0-10 V; Ri= 100 k Ω; adjustable curve; only usable as alternative to input Ain2 I
	12	+20V	Fixed voltage output 20 VDC; +20 V +25/-10 %; max. 50 mA; short circuit proof; power supply for external devices (e.g. sensors)
	13	Ain2 I	Analogue input 2; actual sensor value 4-20 mA; Ri= 100 Ω; adjustable curve; only usable as alternative to inputAin2 U
	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; adjustable curve

WIRING DIAGRAM

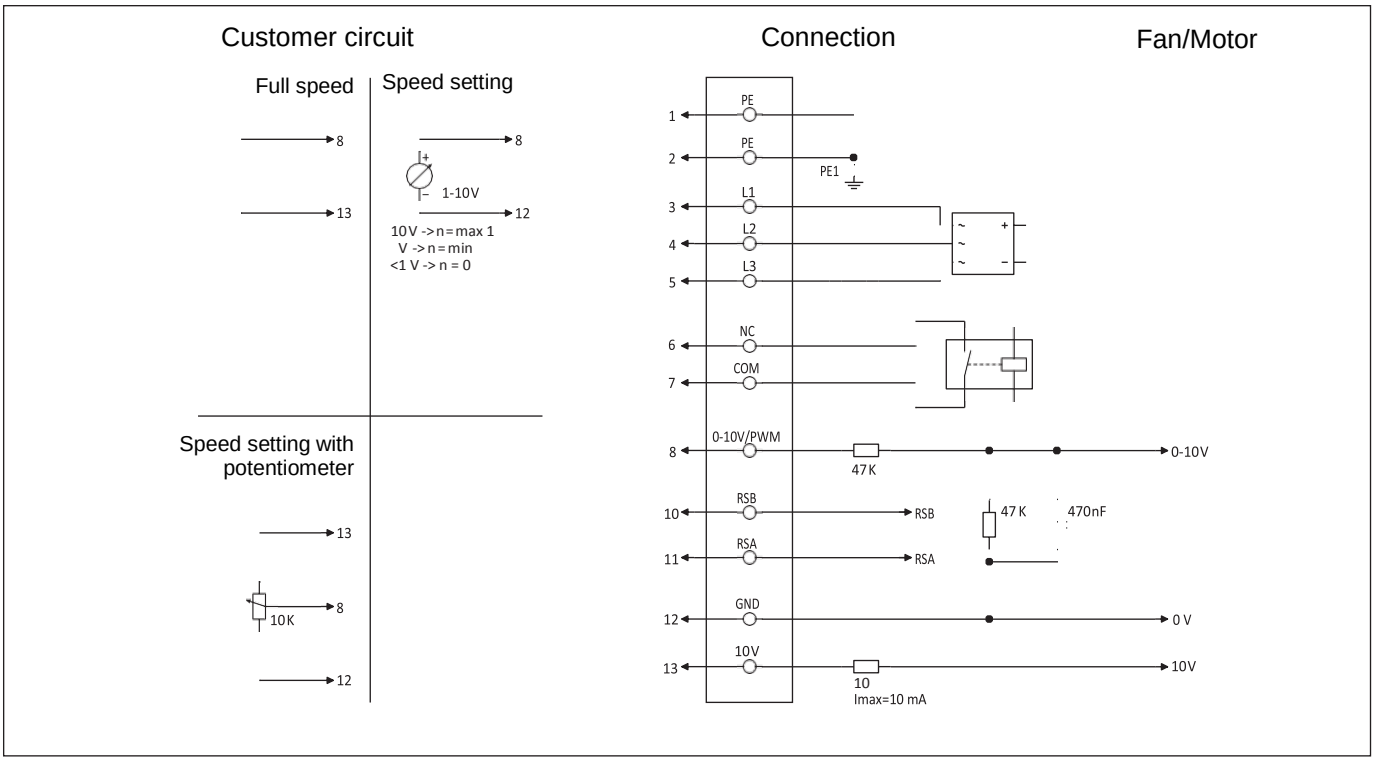


Wire 1				
PE	**N**	**L**	**NC**	**COM**
green/ yellow	blue	black	White 1	White 2

Wire 2				
0-10v	**RS B**	**RS A**	**Gnd**	**+10v**
Yellow	Brown	White	Blue	Red

Wire	Nr	Connection	Colour	Assignment/Function
1	1, 2	PE	Green/Yellow	Protective earth
1	3	N	Blue	Power supply, neutral conductor, voltage range : see nameplate, 50/60 Hz
1	5	L	Black	Power supply, phase, voltage range : see nameplate, 50/260 Hz
1	6	NC	White 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
1	7	COM	White 2	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
2	8	0-10 V / PWM	Yellow	Analog input (set value), SELV 0-10 V, impedance 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, SELV +10 V +/- 3%), max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometer)

WIRING DIAGRAM



Wire 1				
PE	**N**	**L**	**NC**	**COM**
green/ yellow	blue	black	White 1	White 2

Wire 2				
0-10v	**RS B**	**RS A**	**Gnd**	**+10v**
Yellow	Brown	White	Blue	Red

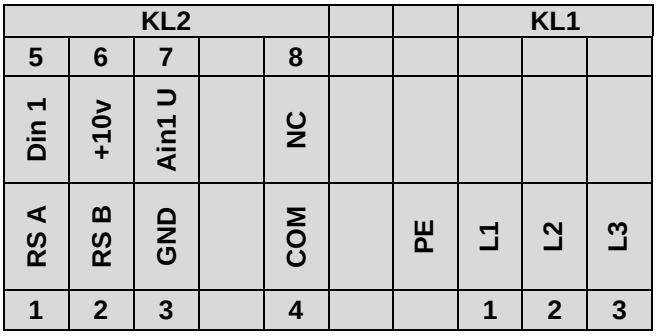
Wire	Nr	Connection	Colour	Assignment/Function
1	1, 2	PE	Green/Yellow	Protective earth
1	3, 4, 5	L1, L2, L3	Black	Power supply, phase, voltage range : see nameplate, 50/260 Hz
1	6	NC	White 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) Min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
1	7	COM	White 2	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) Min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
2	8	0-10 V / PWM	Yellow	Analog input (set value), SELV 0-10 V, impedance 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, SELV +10 V +/- 3%), max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometer), SELV Fixed voltage output 24 VDC for setting parameters via MODBUS without line voltage supply

WIRING DIAGRAM

PE	PE	L1	L2	L3	NC	COM	GND	RSA	RSB	0-10V	+10V 24V IN
1	2	3	4	5	6	7	8	9	10	11	12

Nr	Connection	Assignment/Function
1, 2	PE	Protective earth
3	L1	Power supply, phase, voltage range : see nameplate, 50/60 Hz
4	L2	
5	L3	
6	NC	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) Min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
7	COM	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) Min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side
8	GND	Reference ground for control interface, SELV
9	RSA	RS485 interface for MODBUS, RSA, SELV
10	RSB	RS485 interface for MODBUS, RSB, SELV
11	0-10V / PWM	Analog input (set value), SELV 0-10 V, impedance 100 kΩ, adjustable curve
12	+10V	Fixed voltage output 10 VDC, SELV +10 V +/- 3%), max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometer), SELV Fixed voltage output 24 VDC for setting parameters via MODBUS without line voltage supply

WIRING DIAGRAM



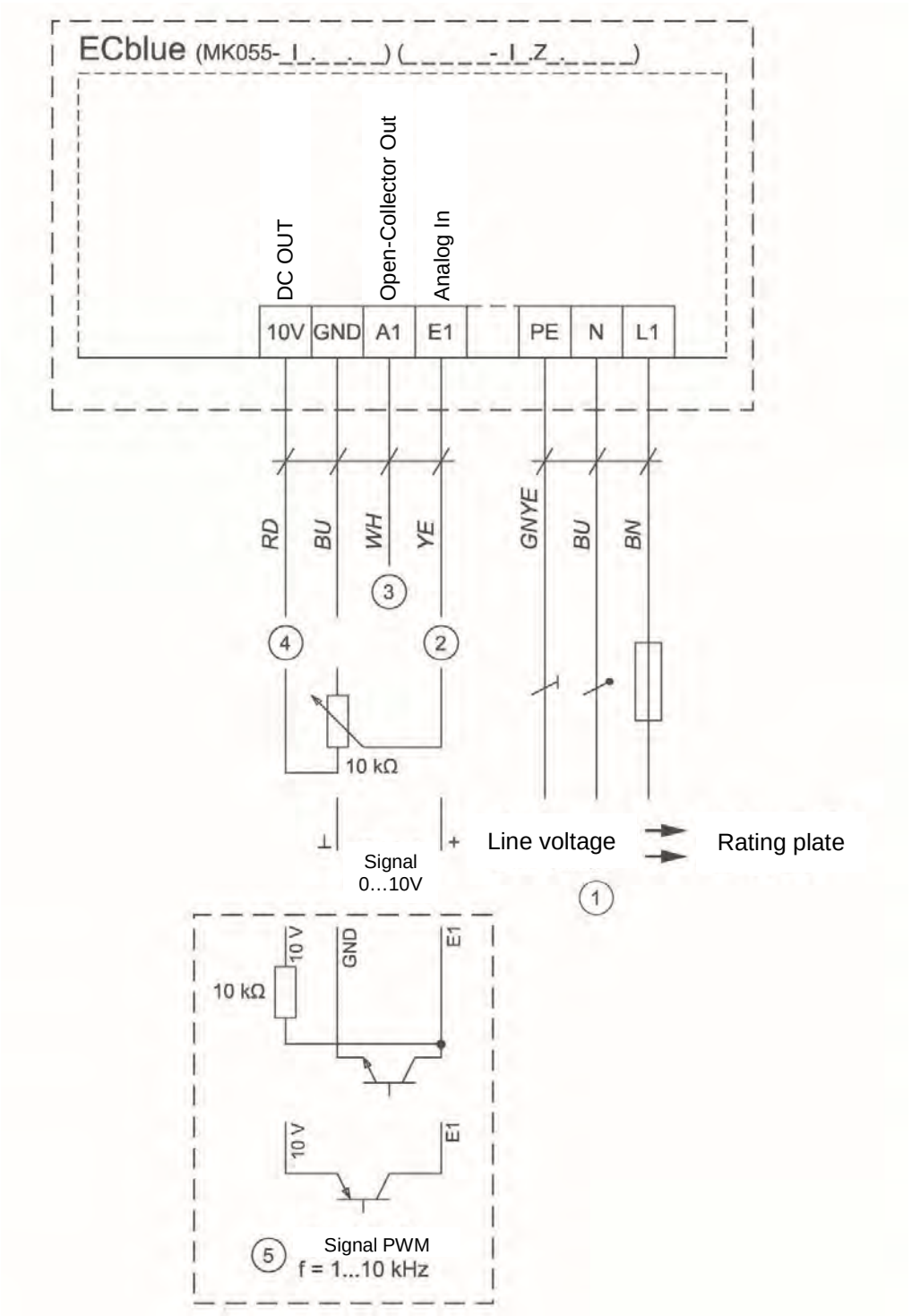
Connector	PIN	Connection	Assignment/Function
KL1	1	L1	Supply connection, power supply 380-480 VAC; 50/60 Hz
	2	L2	
	3	L3	
PE		PE	Earth connection, PE connection
KL2	1	RSA	Bus connection RS485; RSA; MODBUS RTU, SELV
	2	RSB	Bus connection RS485; RSB; MODBUS RTU, SELV
	3	GND	Reference ground for control interface, SELV
	4	COM	Status relay, floating status contact, changeover contact, common connection, contact rating 250 VAC / 2 A (AC1)
	5	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 < 1V
	6	+10V	Fixed voltage output 10 VDC; + 10 V ±3 %; max. 10 mA; short circuit proof, power supply for external devices (e.g. potentiometer)
	7	Ain1 U / PWM	Analogue input 1 (set value); 0-10 V; Ri= 100 Ω; adjustable curve; SELV
	8	NC	Status relay, floating status contact; break for failure

WIRING OF ZIEHL-ABEGG EC FANS

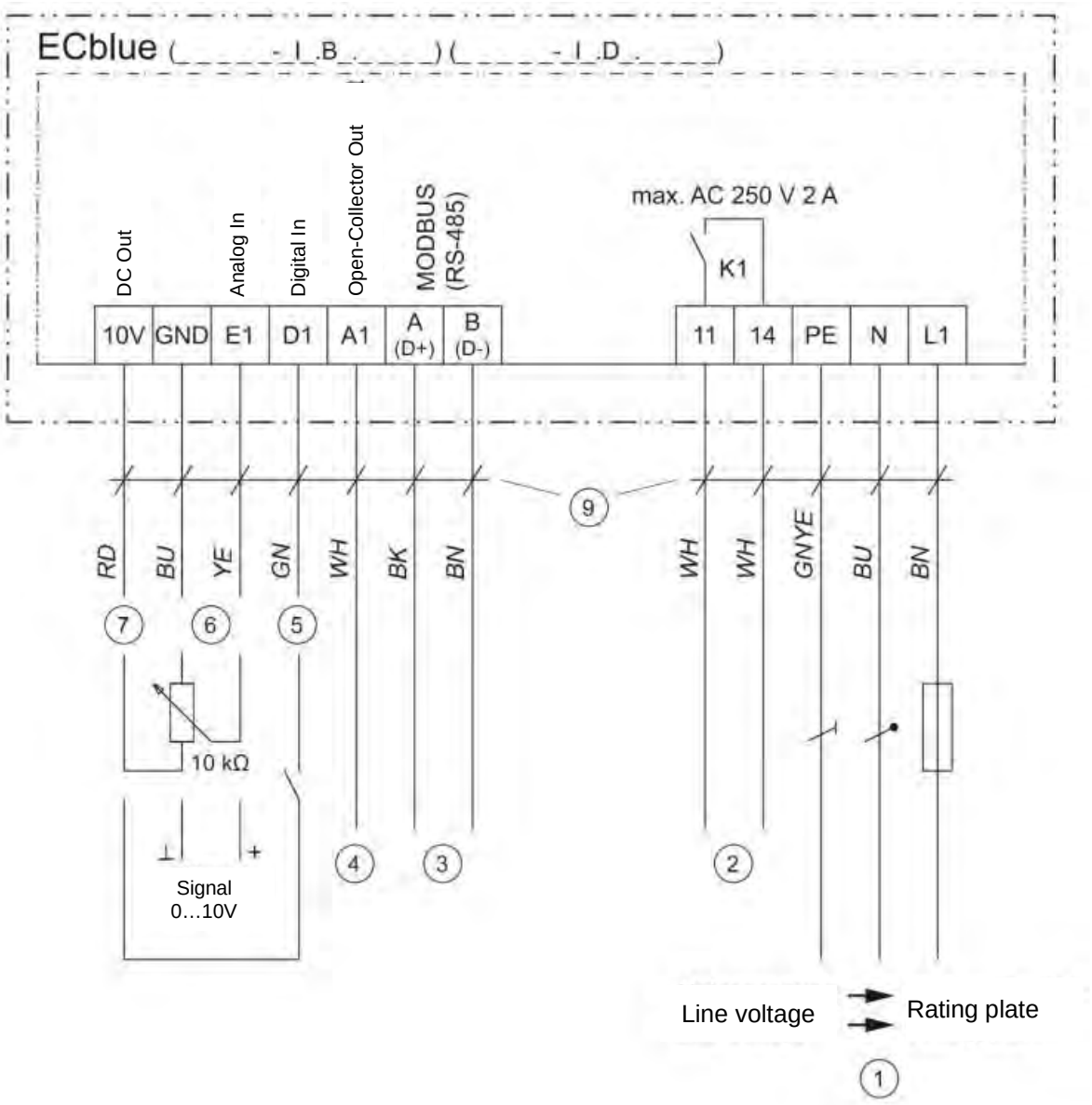
ZIEHL-ABEGG

Fan	Wiring Diagram	Page
GR25V-4IP.ZC.AR178090	1360-404	17
GR25C-6ID.BD.CR115466/A01	1360-384	18
GR25C-6ID.BD.CR115666/A01	1360-384	18
GR28C-6ID.BD.CR115468/A01	1360-384	18
GR28C-6ID.BD.CR115667/A01		
GR31V-ZID.DC.1R114149	1360-403	19
GR31C-6ID.BD.CR115470/A01	1360-384	18
GR31C-6ID.BD.CR115668/A01	1360-384	18
GR31C-ZID.DC.CR115472/A01	1360-403	19
GR31C-ZID.DC.CR115506/A01	1360-403	19
GR31C-ZID.DG.CR115474/A01	1360-403	19
GR35C-ZID.DC.CR115475/A01	1360-403	19
GR35C-ZID.DC.CR115510/A01		
GR35C-ZID.DG.CR115477/A01		
GR40C-ZID.DC.CR115478/A01	1360-403	19
GR40C-ZID.DC.CR115514/A01		
GR40C-ZID.DG.CR115503/A01		
GR40C-ZID.GG.CR115517/A01		
GR40C-ZID.GG.CR115527/A01		
GR45C-ZIK.DG.CR115483/A01	1360-403	19
GR45C-ZIK.DG.CR115486/A01		
GR45C-ZID.GG.CR115521/A01		
GR45C-ZID.GG.CR115528/A01		
GR50C-ZID.GG.CR115523/A01	1360-403	19
GR50C-ZID.GL.CR115497/A01		
GR56C-ZID.GG.CR115525/A01	1360-403	19
GR56C-ZID.GL.CR115492/A01		
GR56C-ZID.GQ.CR115278		
ER63C-6IN.F7.CR115626/2P61	UMUN18K1	20
ER63C-6IN.F7.CR115627/2P61		
ER63C-6IN.F7.CR115628/2P61		
ER63C-6IN.H7.CR115629/2P61		
ER71C-6IN.F7.1R115630/0P61	UMUN18K1	20
ER71C-6IN.F7.1R115631/0P61		
ER71C-6IN.H7.1R115632/0P61		
ER71C-6IN.H7.1R115633/0P61		
ER80C-6IN.H7.1R115635/0P61	UMUN18K1	20
ER80C-6IN.H7.1R115636/0P61		
ER80C-6IN.H7.1R115637/0P61		
ER90C-6IN.H7.1R115638/0P61	UMUN18K1	20
ER90C-6IN.H7.1R115639/0P61		
ER90C-6IN.H7.1R115640/0P61		

WIRING DIAGRAM

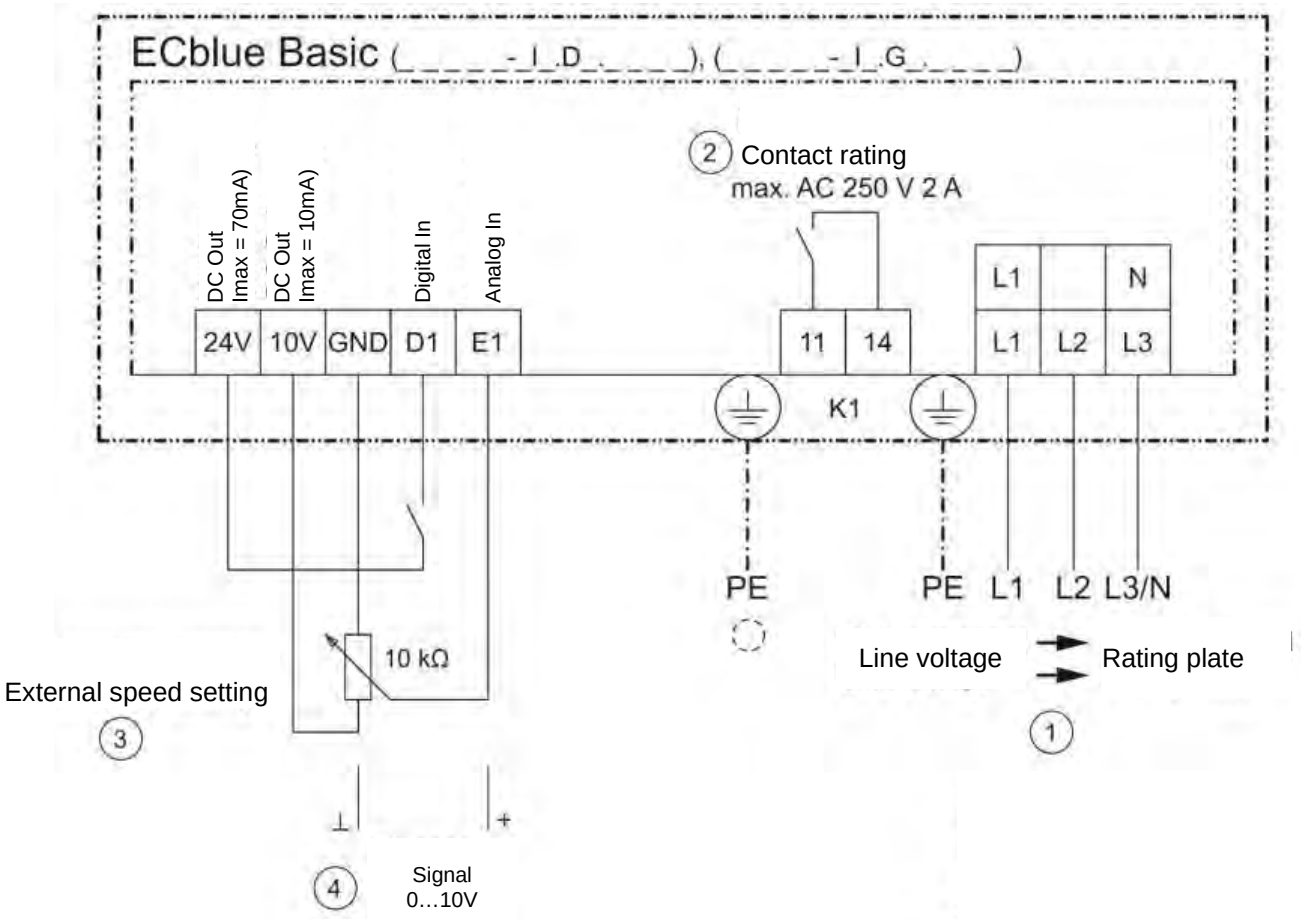


WIRING DIAGRAM



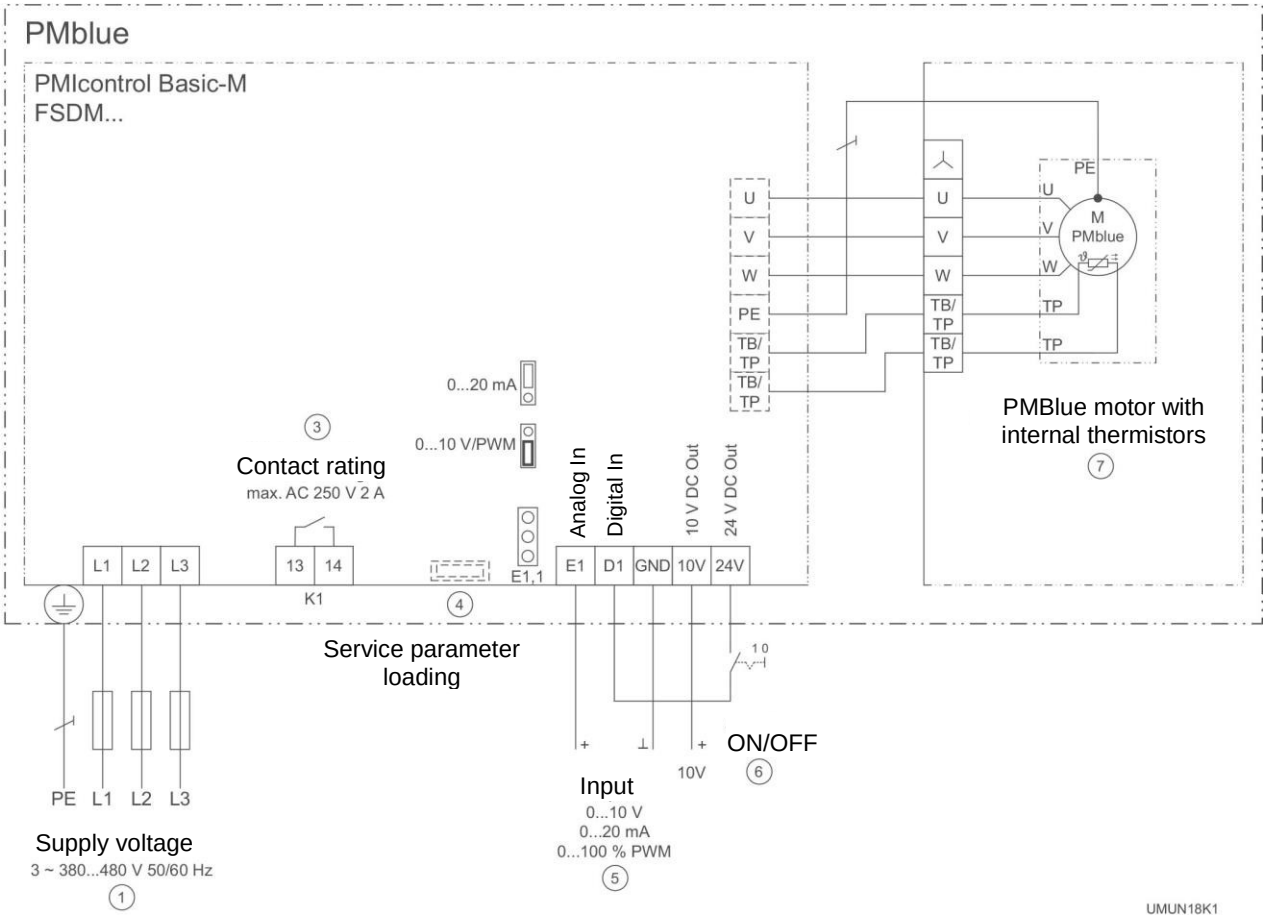
1	Main voltage → Nameplate
2	Relay output for fault signaling (Max. limit 250V 2A)
3	Modbus interface (RS485)
4	Open collector output (Imax 20 mA)
5	Digital input for enabling (Ri ca. 2 k Ω)
6	Input for setting the speed via signal 0…10V / potentiometer (Ri > 100k Ω)
7	Supply voltage 10 VDC (Imax 50 mA)
9	Version with connection cables

WIRING DIAGRAM



1	Main voltage → Nameplate
2	Max. limit 250V 2A
3	External speed setting
4	Input 0…10V

WIRING DIAGRAM



1	Supply voltage 3-380V…480V, 50/60 Hz
2	Not suitable for IT system
3	Max. contact rating 2A/250 V AC
4	Interface for transferring the motor / fan parameters with ZAstick
5	Input : 0…10V, 0…20mA, 0.100% PWM
6	Enable device ON/OFF
7	PMBlue motor with internal thermistors

INSTRUCTIONS FOR THE AIRFLOW METER

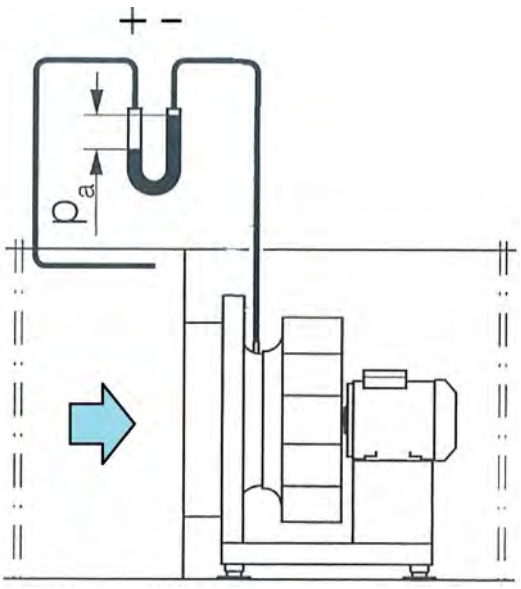
Positioning of pressure tappings for plug fans or centrifugal with scroll for airflow measuring device

1. The two pressure tappings le must be fitted upstream and at fan inlet cone.

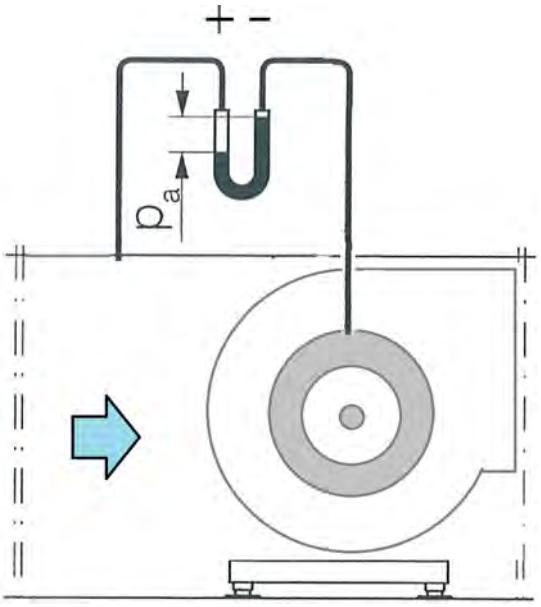
2. The upstream must be connected at the **+** marked connection at pressostat; the one at fan inlet at the **-** marked connection.

3. The upstream tapping + must be positioned in one corner, where the air is almost calm.

4. the pressure taps will have to penetrate through the panel with a hole to size, sealed to not allow the passage of air, and be connected to the pressure switches mounted in the cable compartment.



PLUG FAN



FAN WITH SCROLL

Note:

In the following pages the k coefficients to be used in converting the velocity pressure into flowrate are shown. Because the formula used by the electronic controller may or may not include the air density, two values for the k coefficient are indicated for eadch fan model.
If the air density shall not be input in the electronic controller, an air density of 1.2 kg/m^3 is considered in determining the k coefficient.

Input air density in the controller

$$Qv = k \bullet \sqrt{\frac{2}{P} \Delta p}$$

Air density included in k :

$$Qv = k \bullet \sqrt{\Delta p}$$

K coefficient—COMEFRI fans

$$Qv = k \bullet \sqrt{\frac{2}{P}\Delta p}$$

Qv : airflow rate (m^3/h)
Δp : pressure differential (Pa)
P : air density (kg/m^3)

	NTHZ forefinger				TZAF forefinger				VTZ		THLZ	THLZ FF	TE	NPL	NPA
Fan diameter	B/R	T1	T2	T2L	B/R	T1	T2	T2L	B/R	T1	B/R	B/R			
180											45	47	23		
200											56	59	30		
225											73	75	38		
250											89	92	47	49	
280											112	114	59	60	
315	212	201	198		212	201			215	201	139	145	75	74	101
355	268	257	251		268	257	251		273	262	181	184	95	100	134
400	335	318	304	298	332	312	301	284	340	323	226	234	123	139	173
450	421	402	385	379	418	396	382	360	429	410	274	296	158	178	192
500	521	496	477	466	505	471	443	443	530	505				218	259
560	641	605	572	586	633	591	558	558	653	613				268	329
630	851	811	756	767	845	803	742	742	867	845				349	413
710	1129	1088	1004	1004	1129	1088	990	990	1152	1163				455	558
800		1361	1308	1308		1361	1297	1297		1444				566	683
900		1721	1654	1654		1721	1642	1642		1826				700	878
1000		2091	2091	2091		2091	2091	2091		2203				859	1138
1120		2624	2624	2624		2624	2624	2624						1074	1283
1250		3268	3268	3268		3268	3268	3268						1241	1673
1400														1556	2099

$$Qv = k \bullet \sqrt{\Delta p}$$

Qv : airflow rate (m^3/h)
Δp : pressure differential (Pa)

For air density 1.2 kg/m^3

	NTHZ forefinger				TZAF forefinger				VTZ		THLZ	THLZ FF	TE	NPL	NPA
Fan diameter	B/R	T1	T2	T2L	B/R	T1	T2	T2L	B/R	T1	B/R	B/R			
180											58	61	30		
200											72	76	39		
225											94	97	49		
250											115	119	61	63	
280											144	147	76	77	
315	273	259	255		273	259			277	259	180	187	97	95	130
355	345	331	324		345	331	324		353	338	234	237	123	129	173
400	432	410	392	385	428	403	389	367	439	417	292	302	159	179	223
450	543	518	496	489	540	511	493	464	554	529	354	381	204	230	248
500	673	640	615	601	651	608	572	572	683	651				281	334
560	827	781	737	755	817	763	719	719	842	791				346	424
630	1097	1047	975	989	1090	1036	957	957	1119	1090				450	533
710	1457	1403	1295	1295	1457	1403	1277	1277	1486	1500				587	720
800		1755	1687	1687		1755	1673	1673		1863				730	881
900		2219	2133	2133		2219	2119	2119		2356				903	1133
1000		2698	2698	2698		2698	2698	2698		2842				1108	1468
1120		3385	3385	3385		3385	3385	3385						1385	1655
1250		4216	4216	4216		4216	4216	4216						1601	2158
1400														2007	2708

In case of two or more fans operating in parallel, one only will be connected but the coefficient K will be multiplied by the number of fans.

K coefficient – NICOTRA-GEBHARDT fans

$$Qv = k \bullet \sqrt{\frac{2}{P}\Delta p}$$

Qv : airflow rate (m^3/h)
Δp : pressure differential (Pa)
P : air density (kg/m^3)

ADH		RDH		RZR		RLM	
ADH-E_0160	137						
ADH-E_0180	178	RDH-E_0180	112				
ADH-E_0200	203	RDH-E_0200	64.8	RZR-1_0200	129		
ADH-E_0225	246	RDH-E_0225	86.2	RZR-1_0225	148		
ADH-E_0250	282	RDH-E_0250	123	RZR-1_0250	181		
ADH-E_0280	353	RDH-E_0280	157	RZR-1_0280	213	RLM-5_2528	94
ADH-E_0315	441	RDH-E_0315	207	RZR-1_0315	245	RLM-5_2831	116
ADH-E_0355	504	RDH-E_0355	277	RZR-1_0355	303	RLM-5_3135	136
ADH-E_0400	684	RDH-E_0400	379	RZR-1_0400	374	RLM-5_3540	155
ADH-E_0450	811	RDH-E_0450	505	RZR-1_0450	465	RLM-5_4045	194
ADH-E_0500	1090	RDH-E_0500	634	RZR-1_0500	594	RLM-5_4550	245
ADH-E_0560	1283	RDH-E_0560	875	RZR-1_0560	723	RLM-5_5056	310
ADH_630	1568	RDH_630	1091	RZR-1_0630	942	RLM-5_5663	387
ADH_710	1776	RDH_710	1306	RZR-1_0710	1239	RLM-5_6371	497
ADH_800	2443	RDH_800	1571	RZR-1_0800	1523	RLM-5_7180	626
ADH_900	2939	RDH_900	1904	RZR-1_0900	1872	RLM-5_8090	800
ADH_1000	4182	RDH_1000	2542	RZR-1_1000	2388	RLM-5_9010	1020
		RDH_1120	3367	RZR-1_1120	3098	RLM-5_1011	1291
		RDH_1250	4193	RZR-1_1250	3873	RLM-5_1112	1627
		RDH_1400	5260	RZR-1_1400	4906	RLM-5_1214	1988
				RZR-1_1600	6068		

$$Qv = k \bullet \sqrt{\Delta p}$$

Qv : airflow rate (m^3/h)
Δp : pressure differential (Pa)

						For air density 1.2 kg/m^3	
ADH	**K**	**RDH**	**K**	**RZR**	**K**	**RLM**	**K**
ADH-E_0160	177						
ADH-E_0180	230	RDH-E_0180	145				
ADH-E_0200	262	RDH-E_0200	84	RZR-1_0200	167		
ADH-E_0225	318	RDH-E_0225	111	RZR-1_0225	191		
ADH-E_0250	364	RDH-E_0250	159	RZR-1_0250	234		
ADH-E_0280	456	RDH-E_0280	203	RZR-1_0280	275	RLM-5_2528	121
ADH-E_0315	569	RDH-E_0315	267	RZR-1_0315	316	RLM-5_2831	150
ADH-E_0355	651	RDH-E_0355	358	RZR-1_0355	391	RLM-5_3135	176
ADH-E_0400	883	RDH-E_0400	489	RZR-1_0400	483	RLM-5_3540	200
ADH-E_0450	1047	RDH-E_0450	652	RZR-1_0450	600	RLM-5_4045	250
ADH-E_0500	1407	RDH-E_0500	818	RZR-1_0500	767	RLM-5_4550	316
ADH-E_0560	1656	RDH-E_0560	1130	RZR-1_0560	933	RLM-5_5056	400
ADH_630	2024	RDH_630	1408	RZR-1_0630	1216	RLM-5_5663	500
ADH_710	2293	RDH_710	1686	RZR-1_0710	1599	RLM-5_6371	642
ADH_800	3154	RDH_800	2028	RZR-1_0800	1966	RLM-5_7180	808
ADH_900	3794	RDH_900	2458	RZR-1_0900	2417	RLM-5_8090	1033
ADH_1000	5399	RDH_1000	3281	RZR-1_1000	3083	RLM-5_9010	1317
		RDH_1120	4346	RZR-1_1120	3999	RLM-5_1011	1667
		RDH_1250	5413	RZR-1_1250	5000	RLM-5_1112	2100
		RDH_1400	6790	RZR-1_1400	6333	RLM-5_1214	2566
				RZR-1_1600	7833		

K coefficient—EBM-PAPST fans

$$Qv = k \bullet \sqrt{\frac{2}{P}\Delta p}$$

Qv : airflow rate (m^3/h)
Δp : pressure differential (Pa)
P : air density (kg/m^3)

Fan diameter	
RADIPAC - K3GxxxA… / K3GxxxB… *flat blade*	**K**
250	54
280	72
310	90
355	115
400	146
450	186
500	218
560	270
630	339
710	422
800	538
900	697
Z50	1340

Fan diameter	**K**
RADIPAC 2 - K3GxxxP…. *Airfoil blade*	
250	59
280	60
310	90
355	115
400	146
450	186
500	218
560	270
630	339
710	422
800	538
900	697
Z50	1340

$$Qv = k \bullet \sqrt{\Delta p}$$

Qv : airflow rate (m^3/h)
Δp : pressure differential (Pa)

For air density 1.2 kg/m^3

Fan diameter	
RADIPAC - K3GxxxA… / K3GxxxB… *flat blade*	**K**
250	70
280	93
310	116
355	148
400	188
450	240
500	281
560	348
630	438
710	545
800	695
900	900
Z50	1730

Fan diameter	**K**
RADIPAC 2 - K3GxxxP…. *Airfoil blade*	
250	76
280	77
310	116
355	148
400	188
450	240
500	281
560	348
630	438
710	545
800	695
900	900
Z50	1730

K coefficient—ZIEHL-ABEGG fans

$Qv = k\sqrt{\Delta pw}$

Qv : airflow rate (m^3/h)

∆pw : pressure differential of the static pressure (Pa)

k : Coefficient for specific nozzle properties, nozzle factor

Fan diameter EC Plug Fan Series ER and GR	K
250	60
GR25V-4IP.ZC.AR D.250	63
280	75
310	95
GR31V-ZID.DC.1R D.310	112
355	121
400	154
450	197
500	252
560	308
630	381
710	490
800	620

CE

Due to REDGE ongoing commitment to quality, the specifications, ratings and dimensions are subject to change without notice and without incurring liability.

Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.

Installation and service must be performed by a qualified installer and servicing agency.