**EC Motor Summary**

**EXHAUST FAN ECM WALL MOUNT ASSEMBLY.**

**EXHAUST FAN ECM WALL MOUNT ASSEMBLY.**

**DO NOT USE S11 ISOLATORS ON DR33HFA USE WALL MOUNT ASSEMBLY.**

**EXHAUST FAN ECM ASSEMBLY.**

ECM Motors on DU/DR 10 and 12 mount directly to the top plates without isolators or adapter plate.

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**MUA DD & HMUA DD / FAN ECM ASSEMBLY.**

Shaft Will Be Flush With the Hub On The Wheel. Except D76, Wheel is Centered In The Blower Housing.
Connection 1 - Fan Disconnect To Handy Box

SO/SJ Cord from disconnect is wired to the ECM wire harness in speed control handy box. For exhaust fans without exterior disconnect switches, run the black and white power wires from the speed control handy box to the disconnect switch.

EC motors are dual voltage 240/120Vac. Wrap one ring of red electrical tape around white wire when wired for 240Vac.

Connection 2 - Transformer

Select the right transformer, the transformer should match the motor voltage 240Vac or 120Vac to 24Vac. Transformer part numbers are shown below. Secure to fan using self drilling screws, 2 places.

240Vac to 24Vac - Part number BE241620GEK - Basler.
120Vac to 24Vac - Part number BE141620GEK0032 - Basler.

Connection 3 - EVO/ECM-VCU-36-MP

EVO/ECM-VCU-36-MP Speed control used to control the ECM motor RPM, fan adjustment and RPM display. Speed is set to 100% - Max RPM during QC.

24Vac from the transformer is connected to the back side of the EVO/ECM.

4 Pin connector from the motor is connected to the back side of the EVO/ECM.

Orange Jumper is removed for 240Vac.

Connection 4 - Power & Communication

4 Pin communication connector from the EVO/ECM is connected to the ECM motor.

5 Pin power connector is connected to the motor. Wrap one ring of red electrical tape around white wire when wired for 240Vac.

Wire Harness Part Number - ECM-WIRE HARNESS
ECM-WIRE HARNESS Used On Exhaust & MUA DD Only.
Telco-ECM-WIRE-HARNESS - Wiring Instructions For Exhaust & Untempered

Connection 1 - Fan Disconnect To Handy Box and Motor Power

- SO/SJ Cord from disconnect is wired to the ECM wire harness and motor wiring in speed control handy box.
- The Telco ECM has a 22AWG white wire that controls rotation direction. For exhaust fans, the white wire is wire-nutted with the larger white wire from the motor, the white wire from the harness, and the white wire from the incoming power.

Connection 2 - Transformer

- SO/SJ Cord from disconnect is wired to the ECM wire harness and motor wiring in speed control handy box.
- Select the right transformer, the transformer should match the motor voltage 240Vac or 120Vac to 24Vac. Transformer part numbers are shown below. Secure to fan using self drilling screws, 2 places.
  - 240Vac to 24Vac - Part number BE241620GEK - Basler.
  - 120Vac to 24Vac - Part number BE141620GEK0032 - Basler.

Connection 3 - ECM-VCU-RTC

- SO/SJ Cord from disconnect is wired to the ECM wire harness and motor wiring in speed control handy box.
- Select Primary Voltage, EC motors are available at 115 / 230-277V, wrap one ring of red electrical tape around white wire when wired for 230-277Vac.
- Secondary voltage is 24Vac, connect the ECM-VCU-RTC to the 24Vac secondary voltage.
- Speed control used to control the EC motor RPM, fan adjustment and RPM display. Speed is set to 100% - Max RPM during QC.
- 24Vac from the transformer is connected to the back side of the RTC.
- The black connector included in the motor harness is plugged directly into the board. This connector only fits one way.
Connection 1 - Power & Communication Connectors From Motor

- Orientate the motor so the connectors are installed on the left side of the motor, minimize exposure to heat.
- ECM-Harness-HMUA, the portion that is exposed to heat is sealed in Galflex run the harness on the outside of the motor and secure to the blower support brackets.
- A 3/8" 90 degree connector is used to secure the harness as it comes through the electric cabinet back, anti shorts must be used.

Connection 2 - Transformer

Secondary 24Vac to the VCU. Red = 24Vac / Black = Neutral

- Primary voltage 240Vac, taken from unit transformer.
- Primary voltage 120Vac, taken from terminal strip.
- 24Vac from transformer to VCU.
- Select the right transformer, the transformer should match the motor voltage 240Vac or 120Vac to 24Vac. Transformer part numbers are shown below. Transformer is installed on the electric board.
  - 240Vac to 24Vac - Part number BE241620GEK - Basler.
  - 120Vac to 24Vac - Part number BE141620GEK0032 - Basler.

Connection 3 - EVO/ECM-VCU-36-MP

- The VCU is installed into a handy box, part number 58371-1/2. The VCU should be installed on the electric board when ever possible. The box is installed to the right of the electric board when installation on the electric board isn't possible. 4.5" down from the top of the electric cabinet back. The box should be just below the intake air bulb knock out.
- Rivets are used to secure the box, sheet metal screws may interfere with the damper.
- EVO/ECM-VCU-36-MP Speed control used to control the EC motor RPM, fan adjustment and RPM display. Speed is set to 100% - Max RPM during QC.

Connection 4 - Starter & Overload

- Connect black & white wires from disconnect to. L1 = Black.
- L2 = White/120Vac.
- L2 = Red/240Vac.
- Connect black & white wires from motor to. T1 = Black.
- T3 = White/120Vac.
- T3 = Red/240Vac.

Red = 24Vac from transformer.
Black = Neutral from transformer.
4 pin communication connector from motor.

Connection 5 - Power & Communication

- 4 Pin communication connector from the EVO/ECM is connected to the ECM motor.
- 5 Pin power connector is connected to the motor. Wrap one ring of red electrical tape around white wire when wired for 240Vac.

Cut Insulation On Motor Side Door

D76DD HMUA Only

- Cut Insulation on motor side door. Right side 2 1/2". Right to Left 7". Up from door hooks 11". Remove insulation and cover with tape.

Wire Harness Part Number - ECM-WIRE HARNESS-HMUA
Used On ECM DD HMUA Only.

ECM - D76DD & G10DD - HMUA
Telco-ECM-WIRE-HARNESS-HMUA - Wiring Instructions For HMUA

Connection 1 - Power & Communication Connectors From Motor

- Nidec Motor Shown. Orientate the motor so the wiring is on the left side to minimize exposure to heat.
- Connect the motor wiring to the harness: ECM-Harness-HMUA-Telco inside a j-box with blank cover.
- Use high temp wire nuts to connect the power wires.
- A 3/8” 90 degree connector is used to secure the harness as it comes through the electric cabinet back, anti shorts must be used.

There is a 22AWG white wire from the motor that controls motor direction. Connect this wire with the white motor wire to spin the motor CCW from the non-load end. Connect this wire with the black motor wire to spin the motor CW from the non-load end.

Connection 2 - Transformer
Secondary 24Vac to the VCU, Red = 24Vac / Black = Neutral

- Primary voltage 240Vac, taken from unit transformer.
- Primary voltage 120Vac, taken from terminal strip.
- 24Vac from transformer to ECM-VCU-RTC (not shown).
- Select the right transformer, the transformer should match the motor voltage 240Vac or 120Vac to 24Vac. Transformer part numbers are shown below. Transformer is installed on the electric board.
  - 240Vac to 24Vac - Part number BE241620GEK - Basler.
  - 120Vac to 24Vac - Part number BE141620GEK0032 - Basler.

Connection 3 - ECM-VCU-RTC

- The VCU is installed into a handy box, part number 58371-1/2. The VCU should be installed on the electric board when ever possible. The box is installed to the right of the electric board when installation on the electric board isn’t possible. 4.5” down from the top of the electric cabinet back. The box should be just below the intake air bulb knock out.
- Rivets are used to secure the box, sheet metal screws may interfere with the damper.
- ECM-VCU-RTC Speed control used to control the Telco EC motor RPM, for adjustment and RPM display. Speed is set to 100% - Max RPM during QC.
  - Black = Neutral from transformer.
  - Red = 24Vac from transformer.
  - 4 pin communication connector from motor.

Cut Insulation On Motor Side Door
D76DD HMUA Only

- D76 motor side door.
- Cut Insulation on motor side door. Right side 2 1/2”. Right to Left 7”. Up from door hooks 11”. Remove insulation and cover with tape.

Connection 4 - Starter & Overload

- Connect black & white wires from disconnect to. L1 = Black. L2 = White/120Vac. L2 = Red/240Vac.
- Connect black & white 16AWG wires from motor to. T1 = Black. T3 = White/120Vac. T3 = Red/240Vac.

Connection 5 - Communication

- Connect the black connector from the harness into the ECM-VCU-RTC controller.
- Connect the black & white 16AWG wires from motor to. T1 = Black. T3 = White/120Vac. T3 = Red/240Vac.

Material:  
Blank Size:  
Weight:  lbs

MACOLA/AX Number:  
Drawing Name: ECM Assembly Details

CONFIDENTIAL

Revision History

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Wire Harness Part Number - ECM-WIRE HARNESS-HMUA

Used On ECM DD HMUA Only.

ECM - D76DD & G10DD - HMUA
G10DD-HMUA - PSC Motor Wiring Instructions

Connection 1 - Power The Motor

Install the motor using BIDDMM motor mounts.
Motor wires are wrapped and run to the handy box part number 58371-1/2.
Wires are run from the motor to the overload
Motor:
Wire per motor label as rotations will change per blower orientation.
Overload:
Connect - white to T3.
Connect - black to T1.
Wires exposed to heat are run through Galflex. Once wires are secured the handy box cover part number 58C30 is installed.

Connection 2 - Speed Control

Handy box part number 58371-1/2 is installed on the electric board. The handy box is installed on the lower left corner when possible.
Speed controller part number KBWC-110K is used to control the speed of motor.
Minimum voltage is set to 65Vac during QC.

Connection 1 & 2 - Starter & Overload

Connect black & white wires from disconnect & speed control to.
L1 = Black from speed control.
L2 = White from main disconnect switch.
Connect black & white wires from motor to.
T1 = Black.
T3 = White.
Connect black & white wires from main disconnect to speed control.
White wire from main disconnect to L2 on starter.

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Material: N/A
Blank Size: N/A x N/A
Weight: N/A lbs

G10DD - HMUA

Connection 1 - Power The Motor

G10 DD HMUA - Standard Electric Board Layout
ECM-KIT Installation Instructions

1. ECM kits are used to convert fans using PSC motors to EC motors.
2. Review ECM kit number with details below. The kit number should match your fan number.
3. Disconnect the power going to the fan.
4. Remove the KB electronics speed control.
5. Remove the PSC motor. If needed refer to the motor replacement instructions on commerce.
6. Keep the hardware and isolators when removing the PSC motor.
7. Isolators are not used on wall mount exhaust or with G10 DD MUA motor mount (built in).
8. Make sure the wheel set screws are tightened up on the flats of the motor shaft.
9. EC motors can be wired for 240Vc or 120Vc, verify primary voltage on the transformer.
10. Attach the transformer to the Exhaust fan spun top plate using (2) 1/4-20 self drilling screws.
11. Attach the transformer to the supply blower support using (2) 1/4-20 self drilling screws.

ECM Motors on DU/DR 10 and 12 mount directly to the top plates without isolators or adapter plate.

Shaft Will Extend Through The Wheel Hub Approximately .500’.

EC - Motor.

Shaft Will Be Flush With The Hub On The Wheel. Except D76, Wheel is Centered In The Blower Housing.

MUA DD & HMUA DD / FAN ECM ASSEMBLY.

- 8-32 Whiz Nut Used As Spacers & For Securing Motor.

DO NOT USE S11 ISOLATORS ON DR33HFA USE WALL MOUNT ASSEMBLY

9067SA195 10-32 Lock Nut With Star Washer.
F50400XX - Spun Top Plate.

ECM-KIT Installation Instructions

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8. Make sure the wheel set screws are tightened up on the flats of the motor shaft.
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4. Remove the KB electronics speed control.
5. Remove the PSC motor. If needed refer to the motor replacement instructions on commerce.
6. Keep the hardware and isolators when removing the PSC motor.
7. Isolators are not used on wall mount exhaust or with G10 DD MUA motor mount (built in).
8. Make sure the wheel set screws are tightened up on the flats of the motor shaft.
9. EC motors can be wired for 240Vc or 120Vc, verify primary voltage on the transformer.
10. Attach the transformer to the Exhaust fan spun top plate using (2) 1/4-20 self drilling screws.
11. Attach the transformer to the supply blower support using (2) 1/4-20 self drilling screws.

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