“KITCHEN HOOD EXHAUST ON-DEMAND SYSTEM”

EcoHood

Installation Manual

EcoHood™ INSTALLATION MANUAL

CONTENT

1 WARNINGS

1.1 Safety precautions

- The Ecohood™ system cannot be incorporated in any device that would present danger to the human body or from which malfunction or error in operation would present a direct threat to human life (nuclear power control device, aviation control device, traffic device, life support, safety device or fire extinguishing device). If the system is to be used for any special purpose other than modulating exhaust in kitchen hoods, please contact the manufacturer.

- This equipment is not to be used with equipment in which a malfunction error would cause an accident.

- WARNING! The Noveo system should ONLY be installed by a qualified electrician.

- WARNING! Even when the motor is stopped, dangerous voltage is present at the Drive power circuit terminals.

- WARNING! Dangerous voltage is present when input power is connected. After disconnecting the supply, wait at least 5 minutes (to let the intermediate circuit capacitors discharge) before removing the cover.

1.2 Transportation

- Do not install or operate the Ecohood™ system if it is damaged or a component is missing.

- When transporting or carrying, do not hold panel by front cover. This may result in dropping the unit and result in injury.

1.3 Motor considerations

- A motor insulation system that is subjected to thermal and environmental stress may be at the limit of its capability to withstand dielectric stress regardless of the waveform of the applied voltage. Proper attention must be paid to limiting voltage stresses.

- The motor must be properly selected to remain within suitable operating temperature limits. This means selecting a motor that is suitable for the ambient temperature and load requirements.

- Always use TEFC (Totally Enclosed Fan Cooled) motors.

- Note that long motor cables can contribute to performance problems other than the motor insulation voltage stress concerns that are discussed here. Additional concerns include excessive voltage drop between the controller and motor, problems caused by high frequency

ground leakage current and problems caused by line-to-line capacitance between the conductors of the motor cable.

Using an Existing Motor

- If thermal damage to existing motor is unknown, then the remaining life cannot be forecast.

- General purpose motors have a wide range of capabilities for withstanding fast rising pulses of high peak voltage. Because of the insulation system design variation, peak voltage withstands capabilities range from less than 1000V to more than 1600V. In using an existing motor, it is important to remember that the remaining useful life of the insulation cannot be accurately determined. Even though standard motors are commonly used successfully with drives, drive duty places higher levels of dielectric stress on the motor insulation than are normally present under sine wave duty. If the motor insulation is nearing the end of its useful life, connecting the motor to a drive may lead to more rapid insulation failure. It is always prudent to seek the advice of the motor manufacturer. Only the manufacturer of a particular motor can determine the peak voltage withstand capability of that motor. If the motor manufacturer says that a particular motor model is not suitable for PWM duty or use with drives, a new motor should be installed.

- If the motor manufacturer says that similar motors have been successfully used with drives, it is still important to consider the age and condition of the motor. **Rewound motors must not be used** with VFD.

- Whenever drive is connected to an **existing motor** with a motor cable length exceeding 50 feet, the most conservative approach is to use an **inverter output reactor**. The use of an output reactor is usually the most convenient and economical means of minimizing the possibility of motor insulation failure due to the voltage stress caused by the interaction between the inverter waveform, the motor cable and the connected motor. Since the quality and condition of the motor insulation is unknown, an output reactor can only minimize, not guarantee, the risk of insulation damage.

Motor Selection

- Whenever a new motor is selected for use with a drive, use a motor that is recommended by the motor manufacturer as suitable for use with an variable frequency drive.

- Several motor manufacturers are currently providing motors that meet this requirement and additional motor manufacturers are soon expected to meet this requirement. Some motor manufacturers may recommend only inverter duty motors for use with drives while others may designate certain models of general purpose motors as suitable.

1.4 Installation

- A dedicated 24 volts/50va min power transformer is required.
- The transformer must be dedicated and floating (not grounded) on the low voltage side.
- Do not place flammable objects nearby.
- Do not install in a location where the control panel could come in contact with water, vapour and other fluids.
- Do not install in area where the unit would be subject to excessive of vibration. This could result in the unit falling, resulting in injury.
- The Control Panel must be installed on a base or a wall that can support the unit's weight.
- It is preferable, (but not necessary) to install the Control Panel where the hood(s) it is controlling is/are visible from the panel. This is will facilitate making final adjustments in the final set up and commissioning.

1.5 Operation

- Do not disassemble, modify or repair. This can result in electric shock, fire and injury. For repairs, call your distributor.
- Do not operate the unit with front covers open or removed.

2 READ FIRST

2.1 Check content

Before installing or using the product you have purchased, please ensure that it is exactly what you ordered. It is mandatory to use an Ecohood™ system that conforms to voltage, horsepower and the type three phase induction motor being used.

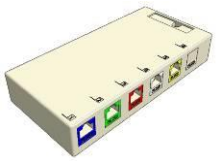
ECP-DP Ecohood™ Control Panel (1 Panel for a maximum of 3 kitchen hoods)

ECP-RP (Remote Panel)
(ECP-RP panel is required for more than three (3) hoods being controlled and exhausted by the same exhaust motor/fan)

ECP-OPT (one set per hood)

1 – Transmitter Head

1 – Receiver Head (with screw in the back)



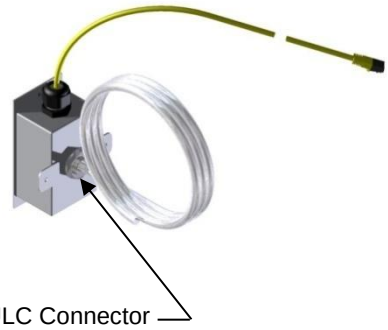
1- RJ-45 Category 5 color coded junction box

1 - 25’ Transmitter cable (Red)

1 - 25’ Receiver cable (White)

1 - 50’ interconnection cable (Blue)

ECP-TMP-length (6, 12 or 24 feet) - (one per hood – double island hood may require two

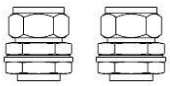
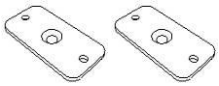
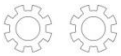
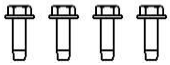


1 – Temperature sensor c/w ULC connector and 15’,(or specified) Yellow Cat5 Cable

- ☐ 6’
- ☐ 12’
- ☐ 24’

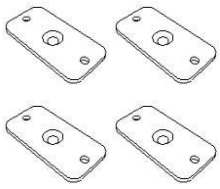
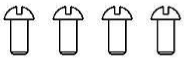
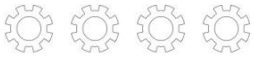
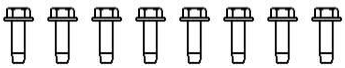
4 - Mounting clips (placed at 2 ft intervals)

INTERNAL MOUNTING KIT

	2 – ULC Connectors
	2 – Holding tubes (24” long) c/w Liquid Tight Connector
	2 – Holding brackets
	2 – Holding Plates
	2 – ¼-20UNC x ½ SS Screw
	2 – Lock washer
	2 – 8-32UNC x ¼ Set Screw
	2 – Countersink ¼-20UNC x ½ SS Screw
	4 - Self Tapping SS Screw

EXTERNAL MOUNTING KIT

ECP manual OPTIONAL ITEMS

	2 – Holding tubes (24” long) c/w Liquid Tight Connector
	4 – Holding brackets
	4 – Holding Plates
	4 – ¼-20UNC x ½ SS Screw
	4 – Lock washer
	4 – 8-32UNC x ¼ Set Screw
	4 – Countersink ¼-20UNC x ½ SS Screw
	8 - Self Tapping SS Screw

OTHER ITEMS THAT MAY BE ORDERED

Check your invoice and verify other items that may be listed other than the above.

3 INSTALLATION

3.1 Installation general requirements

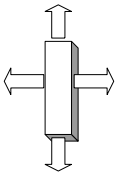
Read “Warnings” before installing the product.

Installation shall meet all local and national jurisdictions including TSSA and regional and Canadian Electrical Codes requirements.

The installation must be done using a **24V/50va** min. dedicated transformer. The transformer *must* be floating (not grounded) on the low voltage side.

Temperature of the room for panel location must be between -40C and +85C.

Do not install in any location of high temperature, high humidity, moisture condensation and freezing and avoid locations where there is exposure to water and/or there may be large amounts of smoke, grease and vapour. Avoid locations close to cooking equipment.

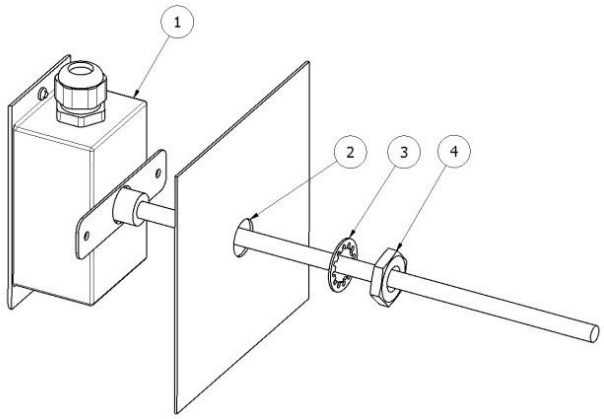


Install the Ecohood™ Control Panel (ECP) in a well-ventilated indoor location and mount it on a flat panel in portrait orientation. Where more than one (1) ECP control panel is installed, the panel separation should be at least 4 inches arranged side by side.

3.2 Temperature Sensor Installation

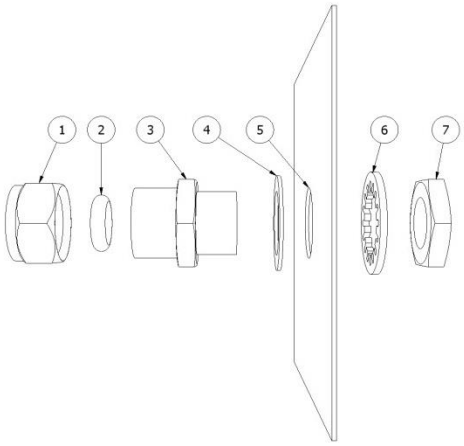
Install the temperature sensor using one of the following configurations. Note that a ULC connector is part of the junction box. To insure a proper seal, the lock washer and nut must be securely tightened.

Drill ¾" hole through hood side or top panel. Install Temperature sensor according to the following figure:



1 – Temperature sensor assembly
2 – 1/2" knockout (7/8" dia.) hole through hood panel
3 – Lock washer
4 - Nut

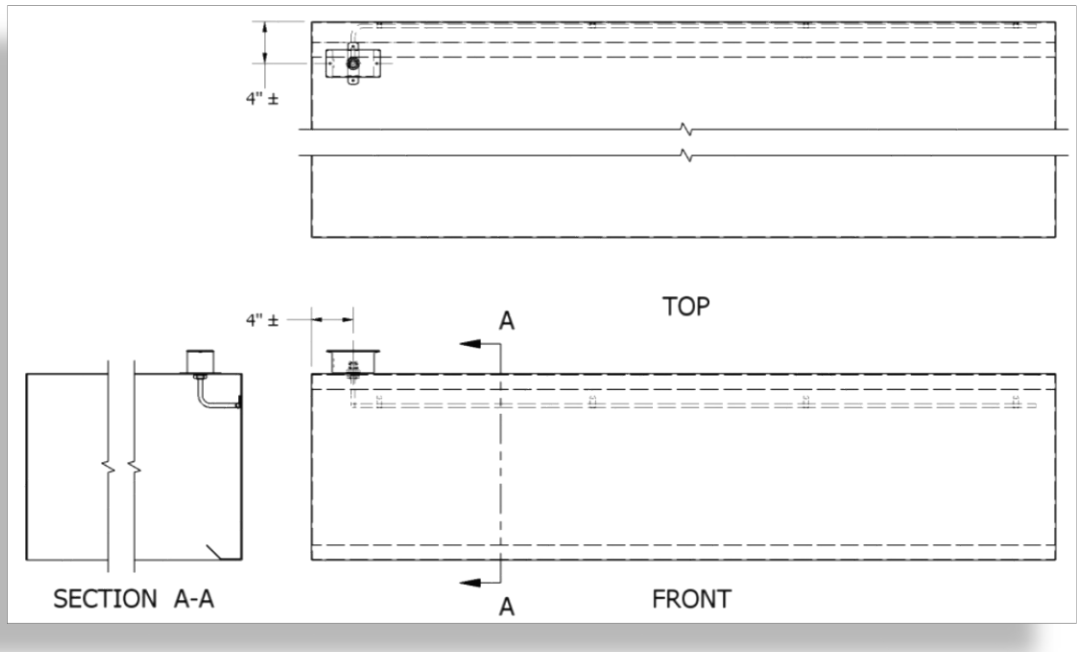
UNDERSTANDING A ULC BULKHEAD CONNECTOR ASSEMBLY

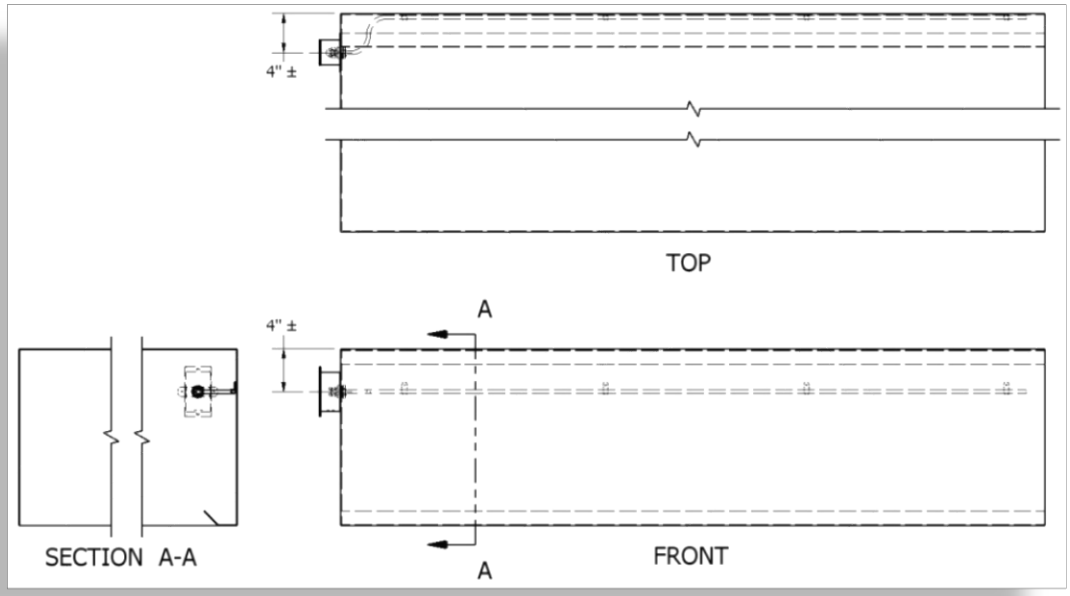


1 – Compression nut
2 – Seal
3 – Adapter body
4 – Gasket
5 – 1/2" knockout (7/8" dia.) hole through hood panel
6 – Lock washer
7 – Nut

Items 1 to 4 are mounted on the exterior side of the hood

Top installation and end wall installation of junction box





3.3 Opacity sensors installation

GENERAL REQUIREMENTS:

The objective of the opacity sensor is to detect surplus smoke before it overflows past the hood front into the room. Opacity sensors must be installed in a manner to detect the surplus smoke that attempts to overflow the hood enclosure at a certain level of exhaust. If the exhaust level is sufficient to contain smoke within the hood, the intent is not to increase the exhaust level. For this reason, the sensors are to be installed close to the front of the hood (approx. 6 to 8 inches from the front face of the hood)

Sensors are installed below the bottom curb of the hood. This location allows for an unobstructed view between transmitter and receiver heads where baffle plates or hood separators are present.

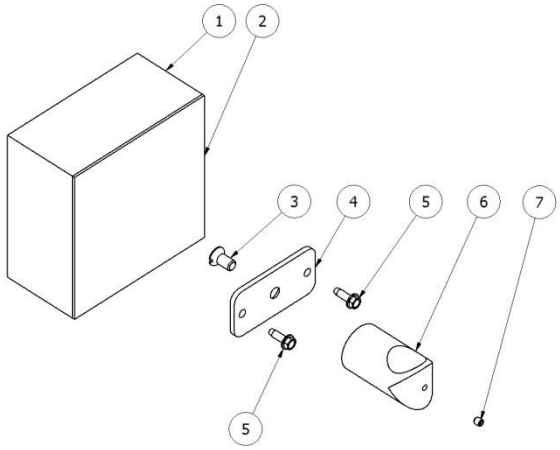
Sensors are to be visually alignment for start-up. Normally, this alignment will be sufficiently accurate for the application.

The **receiver head** (with screw in the back) should be installed on the end where it will be the least affected by natural outdoor lighting. (Check for large windows) ie the glass side of this sensor should point away from any windows.

DO NOT EXCEED THE MAXIMUM RANGE (40 feet) OF SENSOR.

UNIVERSAL MOUNTING BRACKET ASSEMBLY

Use Holding Plate where hood side panel is not directly accessible from inside



1 – Wall enclosure

2 – Hood side panel

3 - Countersink ¼-20 bolt

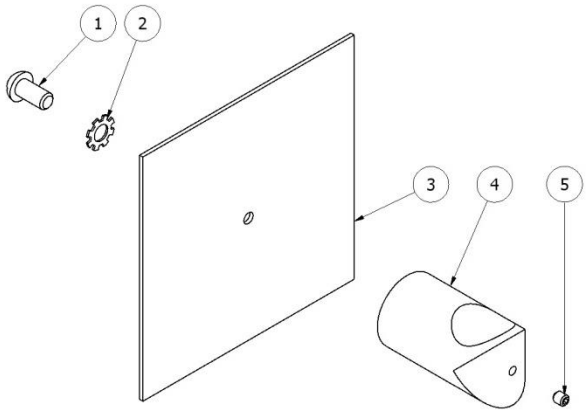
4 – Holding Plate

5 - Self tapping screw

6 – Holding bracket

7 – Set screw

Do not use Holding Plate where side panel is single or double walled (side by side with no space) and is accessible.



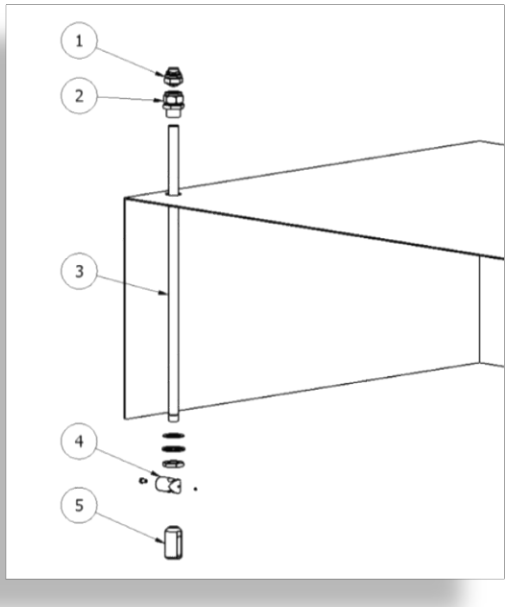
1 – ¼-20 Bolt

2 – Lock washer

3 – Hood side panel

4 – Holding Bracket

5 – Set screw



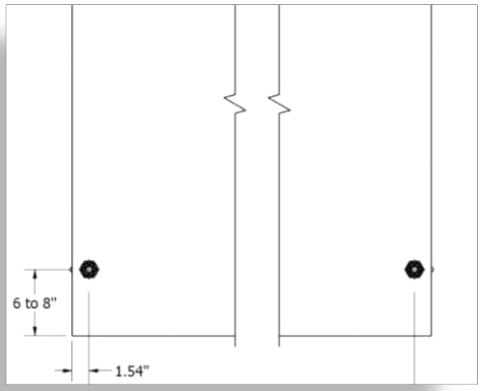
1 – Liquid Tight connector for junction box installation.

2 – ULC bulkhead connector through 1-1/4" hole in top of hood (see ULC connector detail in previous section)

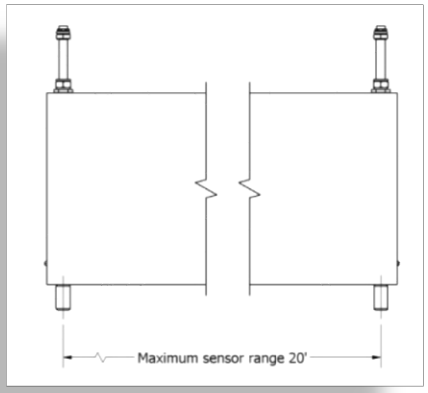
3 – Holding Tube

4 – Holding Bracket

5 – Sensor Head

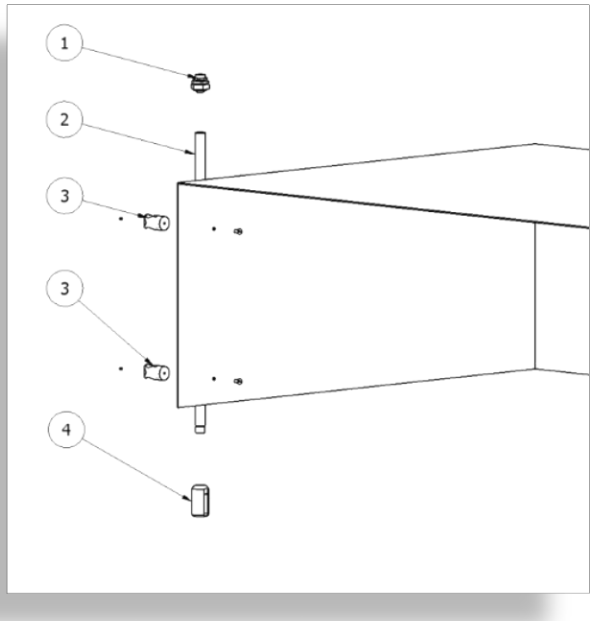


Top view - Hole positioning from front of hood



Front view - Maximum range of sensors is now 40 feet

HOOD WITH NO WALLS ON SIDE



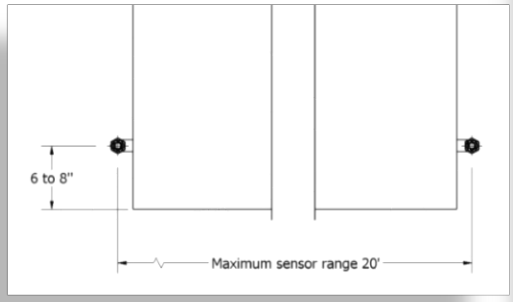
1 – Liquid Tight connector available for junction box installation

2 – Holding support

3 – (2) Holding brackets (position to be determined on site)

4 – Sensor head

3



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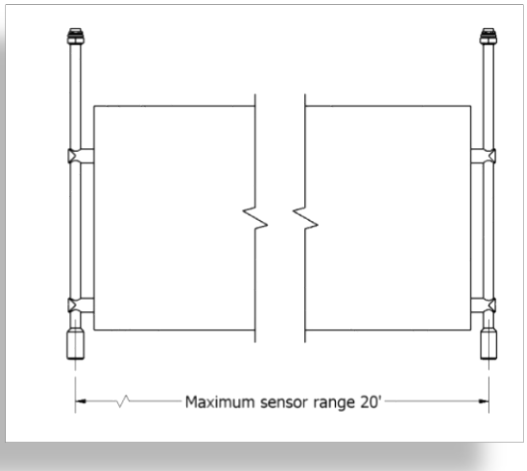
Top view - Hole positioning from front of hood



Front view – Sensors maximum range 40 ft

3.4 Lighting type notice:

Lighting within the hoods must be compact fluorescent or L.E.D type. Do not use incandescent lightbulbs. Replace incandescent bulbs by soft white fluo-compact light bulbs.

3.5 Power connections

Electrical installation work must be done by a qualified licensed electrician.

Checking motor and motor cable insulation

WARNING! Check the motor and motor cable insulation before connecting to input power to the Noveo Panel. For this test, make sure that motor cables are NOT connected to the Panel.

Grounds must be connected securely. Improper grounding could lead to electric shock or fire when a malfunction occurs.

3.6 Control connections

1 - Install the Blue 35' Cat5 cable between the No1 RJ45 receptacle on the ECP panel and Hub (Junction Box) No1 Blue RJ 45 receptacle.

2 - Install the Red 15' Cat5 cable between the Red RJ 45 receptacle on the Hub (Junction Box) and the Samtec 3 pins connector on the transmitter head (no screw in back).

3 - Install the White 15' Cat5 cable between the White RJ 45 receptacle on the Hub (Junction Box) and the Samtec 3 pins connector on the receiver head (with screw in back).

4 - Install the Yellow Cat5 cable from the Temperature sensor to the Yellow RJ45 receptacle on the Hub (Junction Box)

TWO (2) KITCHEN HOODS INSTALLATION

5 - Install the 35' Cat5 cable provided with the second Hub between the Green RJ45 receptacle on Hub No1 and Hub No2 Blue RJ 45 receptacle.

Repeat instructions 2 to 4

THREE (3) KITCHEN HOODS INSTALLATION

6 - Install the 35’ Cat5 cable between the No2 RJ45 receptacle on the ECP panel and Hub No3 Blue RJ 45 receptacle.

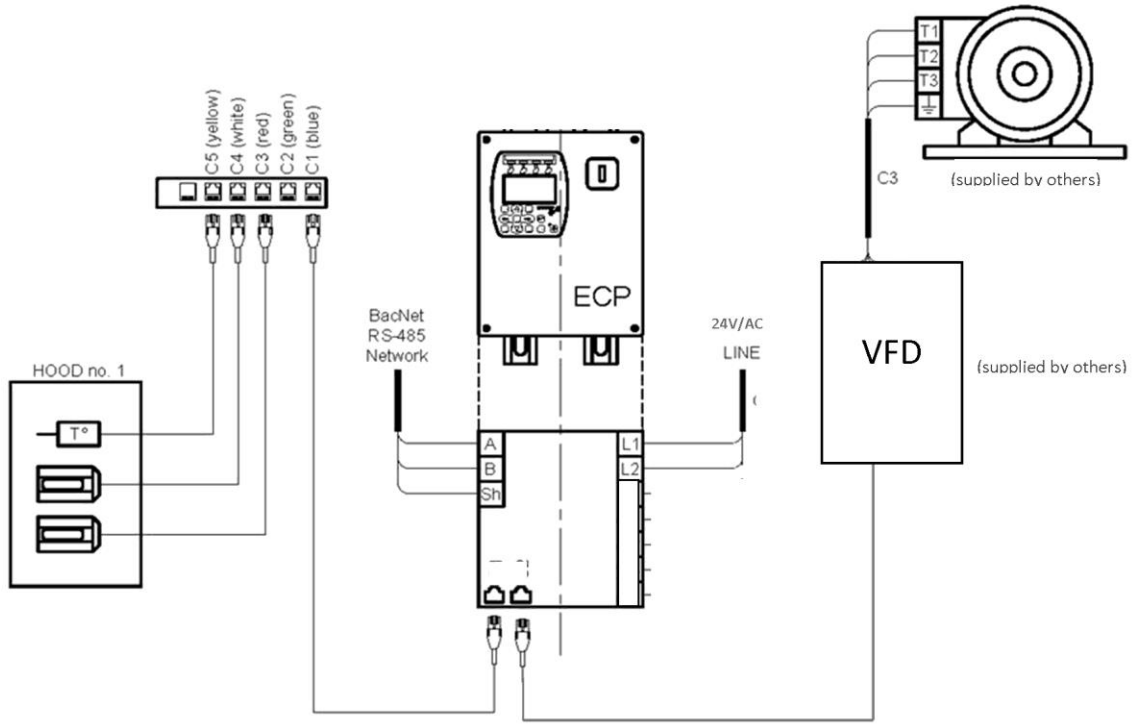
Repeat instructions 2 to 4

3.7 Interconnection Diagrams

See the following diagrams in Appendix A and below for information only:

ECP-One hood installation schematic
ECP-Two hood installation schematic
ECP-Three hood installation schematic
ECP-Four hood installation schematic

ECP-DP One hood installation schematic



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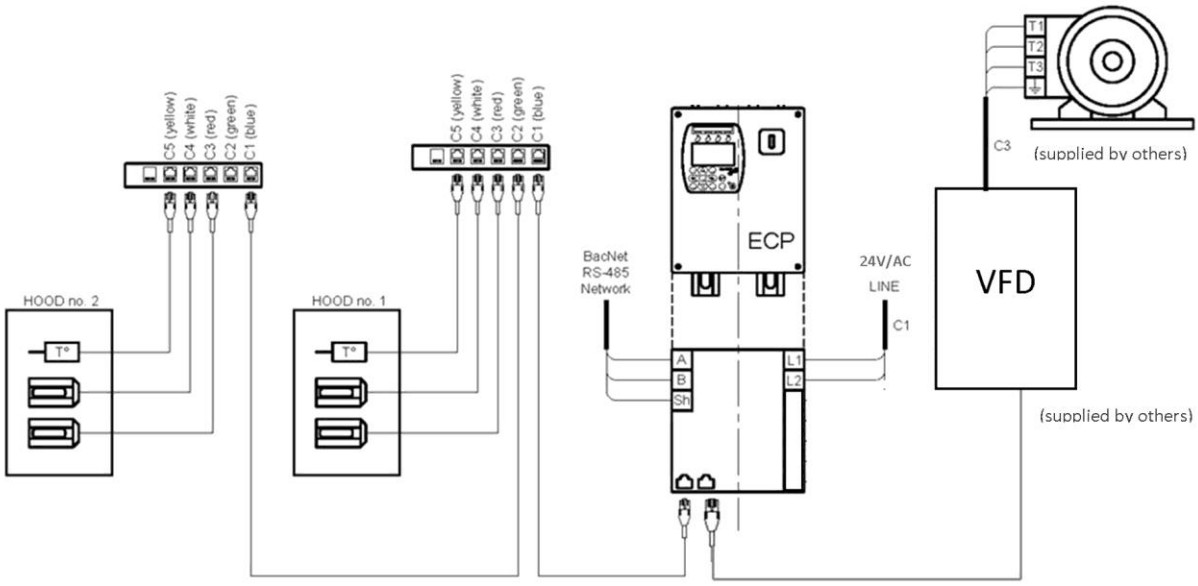
ECP-DP Two hood installation schematic



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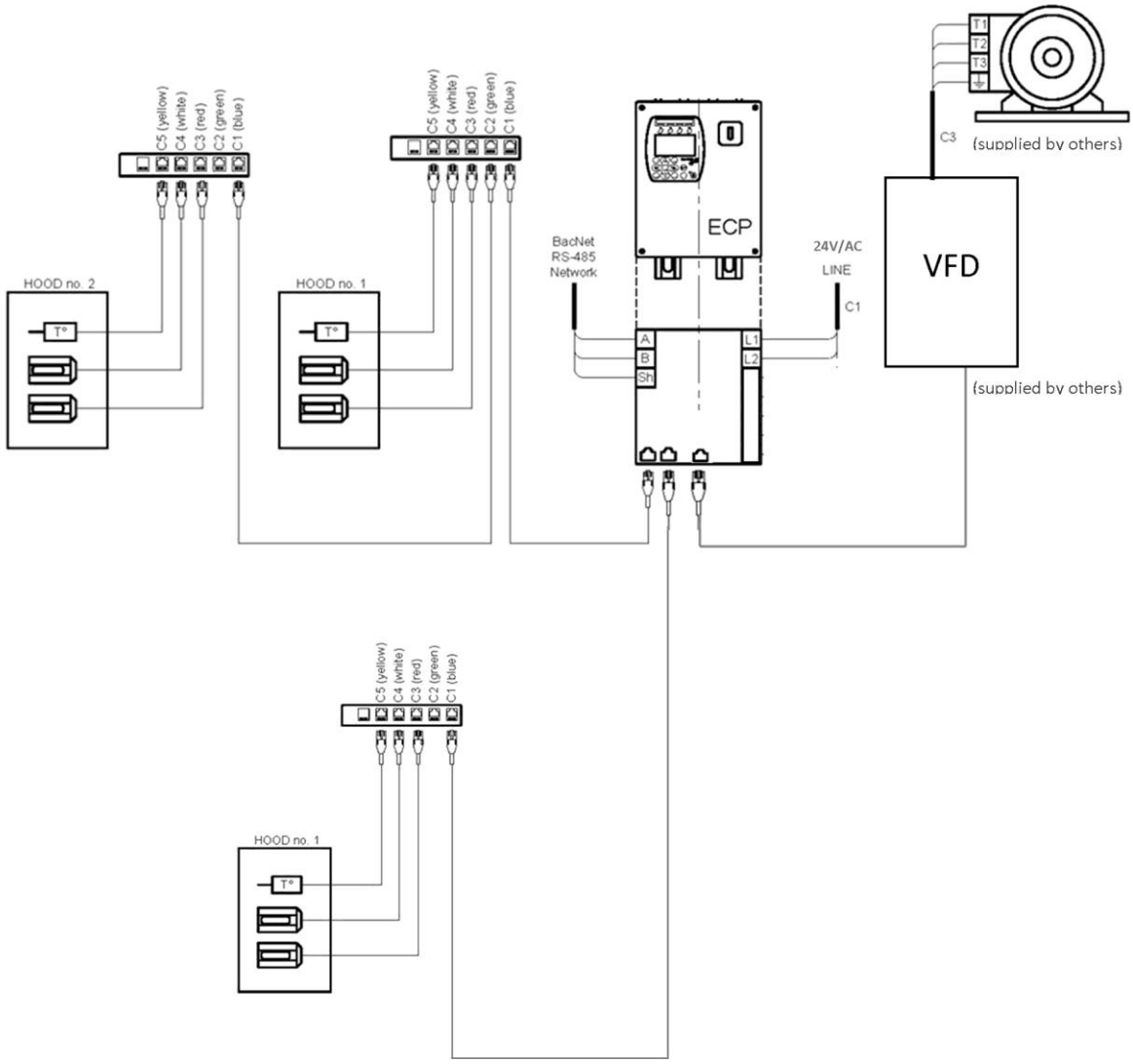
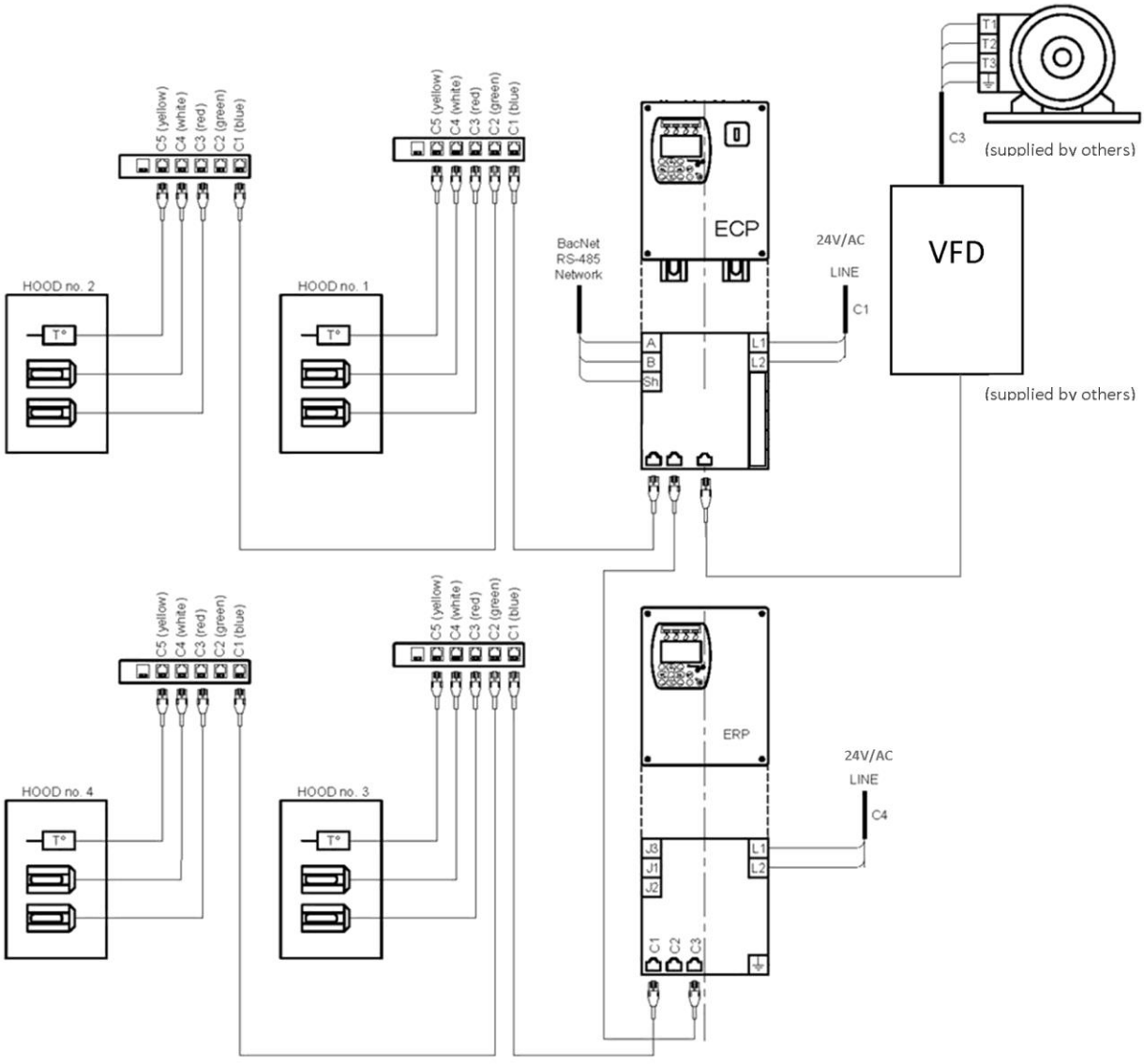
ECP-DP Three hood installation schematic



ECP-DP with ECP-RP Four hood installation schematic



3

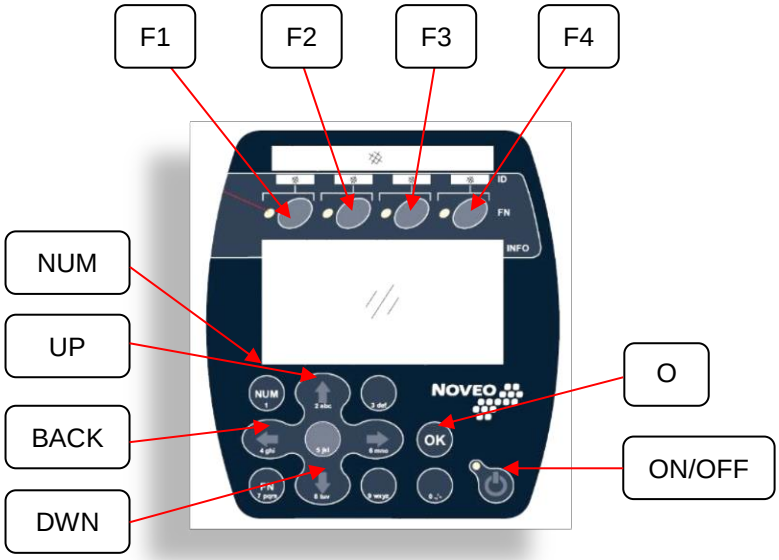
4 START-UP

4.1 Checklist

- ☐ Check control cable installation
- ☐ Visually check Sensors alignment
- ☐ Installation environment conforms to the Noveo system specifications for ambient conditions.
- ☐ The panel is mounted securely.
- ☐ Space around the panel meets the specifications for cooling.
- ☐ The motor and driven equipment are ready for start.
- ☐ The panel is properly grounded.
- ☐ The motor cable is routed away from other cables.
- ☐ NO power factor compensation capacitors are in the motor cable.
- ☐ NO tools or foreign objects (such as drill shavings) are inside the panel.
- ☐ NO alternate power source for the motor (such as a bypass connection) is connected. No voltage is applied to the output of the panel.

4.2 General keyboard information

The different displays are activated by lightly pressing as required on the appropriate touch button. The most useful functions are described below.



GENERAL KEY DESCRIPTION

F1	FUNCTION KEY 1 (Generally used to toggle language)
F2	FUNCTION KEY 2
F3	FUNCTION KEY 3
F4	FUNCTION KEY 4
NUM	Generally used to enter into an **edit mode**. May also be used for switching from numeric to alphabetic key function.
UP	Scroll up key in a menu or a page
BACK	Return to previous menu
DWN	Scroll down key in a menu or a page
OK	Generally used to accept a selection (Enter function)

TOUCH BUTTON

All touch buttons are pressure sensitive. To select appropriate menu, or selection, simply press on the appropriate button as indicated in the instructions.

LANGUAGE: Noveo provides a user choice; English or French. To transfer from English to French or vice versa, press F1

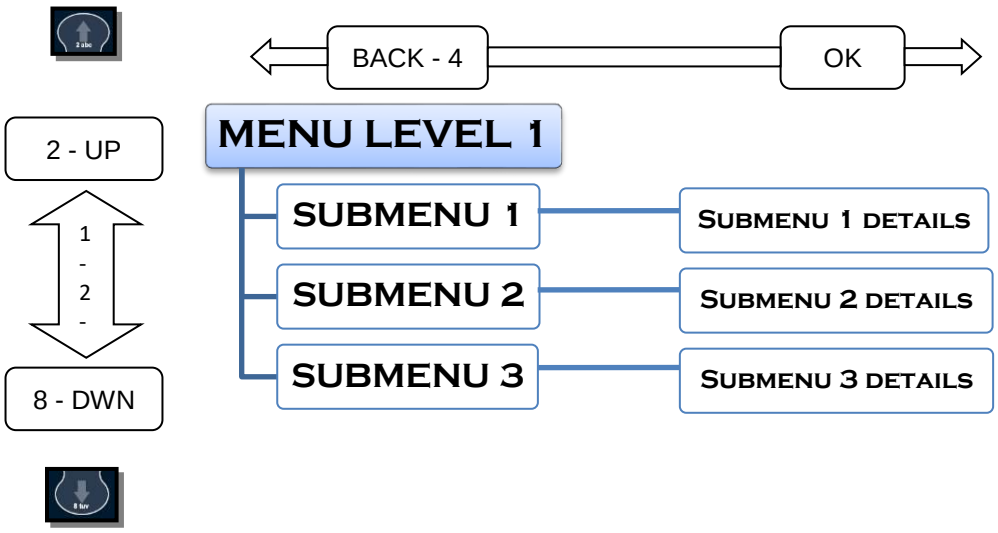
DISPLAY ILLUMINATION: To open the backlight and illuminate display press touch button (5)  . The display remains lit for ten (10) seconds. Press (5)  as required.

ALPHANUMERIC KEYS: When prompted to enter alphanumeric data, use keys with numbers or alphabetic indication. Numbers or letters are contextual. See an enlarged view of a key below:

This key allows for entering 5, j, k or l in alphanumeric mode.

SCROLLING LOGIC:

- To select a primary menu, scroll up or down by pressing the following touch button.
- To switch from a submenu, press BACK (left arrow) key.
- To enter a Submenu, press OK key.
- *Scroll position is indicated by the shadow covering the appropriate number.*



5 OPERATION – Main Control 3 Position Switch ("HAND" – "OFF"- "AUTO")

5.1 Simplified operation – in "AUTO" Position

On start-up (beginning of an operating day), the system will detect a temperature raise in the hood plenum area (behind the filters). On temperature raise over 32°C, the system will be set to operating mode. The exhaust level will be increased from the standby level to the preset minimum operating level.

NOTICE: NFPA standards states that air velocity can be reduced to 500 feet per minute. It is the installer contractor responsibility to set the maximum and minimum level according to Codes, NFPA standards and any other local jurisdiction.

On smoke detection (smoke present between the opacity sensors), the system will increase the exhaust according to the required level. The intent of the system is to exhaust the required amount of air at the appropriate moment. The system being variable, the exhaust level will be adjusted accordingly to the needs.

On high temperature detection (detected in the hood plenum area), the system will increase the exhaust to maintain the preset maximum hood temperature.

On low temperature detection (below 24°C in the hood plenum area) the system will reduce the exhaust to stand-by mode at a preset exhaust level being zero or any requested minimal exhaust rate. The low temperature detection generally corresponds to cooking equipment shut-down.

The system is completely stand alone and does not require any operator's actions.

5.2 By-Pass Mode "HAND" Position – and System Failure

The system will operate at 100% exhaust, any time the control switch is in the "**HAND**" position. This by-passes the automatic control functions of the system.

In the case of failure of the system to function correctly in the "**AUTO**" mode (control switch position), turn the control switch on the front of the panel to "**HAND.**" This will by-pass the Noveo automatic control system, and the VFD will then run the exhaust fan at maximum.

At this point, the hood exhaust will be manually turned on and off at the beginning and end of the cooking shift respectively, using the "**HAND**", and "**OFF**" positions on the control switch, until the problem is rectified and the system operates correctly on the "**AUTO**" position.

Check the "**TROUBLESHOOTING**" SECTION 7 to eliminate possible causes of the problem.

If the problem persists, contact the installer of the system to evaluate and rectify the problem, or contact Noveo Technologies Group Inc., for technical support at 1-877-314-2044.

5.3 "OFF" Position terminates all power to the system – no exhaust

6 SPECIFICATIONS

6.1 ECP-DP

Description:

Ecohood™ ECP-DP Control panel is a Specific Application Controller (Centris) having the capability of receiving signals from opacity sensors and temperature sensors. This unit applies to remote installations where an existing VFD exists.

The exhaust-on-demand ECOHOOD™ system varies the exhaust rate according to the cooking process.

OPERATION:

On start-up (beginning of an operating day), the system will detect a temperature raise in the hood plenum area (behind the filters). On temperature raise over 32°C, the system will be set to operating mode. The exhaust level will be increased from the standby level to the preset minimum operating level.

On smoke detection (smoke present between the opacity sensors), the system will increase the exhaust according to the required level. The intent of the system is to exhaust the requested amount of air at the appropriate moment. The system being variable, the exhaust level will be adjusted accordingly to the needs.

On high temperature detection (detected in the hood plenum area), the system will increase the exhaust to maintain the pre-set maximum hood temperature.

On low temperature detection (below 24°C in the hood plenum area) the system will reduce the exhaust to stand-by mode at a pre-set exhaust level being zero or any requested minimal exhaust rate. The low temperature detection generally corresponds to cooking equipment shut-down.

The system is completely stand alone and does not require any operator's actions.

At any time, the exhaust will operate at 100% in the "**HAND**" (by-pass) position of the control switch on the front of the panel.

SPECIFICATIONS

- Sensors: Up to 3 sets of optical and temperature sensors
- Environmental protection: NEMA3 (Could be ordered in NEMA 12 version)
- Operating Temperature: (0°C to 35°C)
- Centris™ Controller with specific application for exhaust-on-demand kitchen hood embedded software.
- 0-10Vdc output signal indicating opacity level to interconnect with other HVAC components.
- One or two RJ 45 ports to interconnect up to three hood controls.
- Alphanumeric membrane touchpad with 61mm x 34mm dot matrix display.

6.2 ECP-RP (Remote panel)

Description:

Ecohood™ ECP-RP Control panel is a Specific Application Controller (Centris) having the capability of receiving signals from opacity sensors and temperature sensors. This unit applies for installations where more than 3 hoods are to be controlled with the same exhaust system. This unit must be paired with a ECP panel.

The exhaust-on-demand ECOHOOD™ system varies the exhaust rate according to the cooking process.

OPERATION:

On start-up (beginning of an operating day), the system will detect a temperature raise in the hood plenum area (behind the filters). On temperature raise over 32°C, the system will be set to operating mode. The exhaust level will be increased from the standby level to the preset minimum operating level.

On smoke detection (smoke present between the opacity sensors), the system will increase the exhaust according to the required level. The intent of the system is to exhaust the requested amount of air at the appropriate moment. The system being variable, the exhaust level will be adjusted accordingly to the needs.

On high temperature detection (detected in the hood plenum area), the system will increase the exhaust to maintain the preset maximum hood temperature.

On low temperature detection (below 24°C in the hood plenum area) the system will reduce the exhaust to stand-by mode at a preset exhaust level being zero or any requested minimal exhaust rate. The low temperature detection generally corresponds to cooking equipment shut-down.

The system is completely stand alone and does not require any operator's actions.

SPECIFICATIONS

- Sensors: Up to 3 sets of optical and temperature sensors
- Environmental protection: NEMA3 (Could be ordered in NEMA 12 version)
- Operating Temperature: (0°C to 35°C)
- Centris™ Controller with specific application for exhaust-on-demand kitchen hood embedded software.
- 0-5vdc output signal to interconnect with ECP panel.
- One or two RJ 45 ports to interconnect up to three hood controls.
- Alphanumeric membrane touchpad with 61mm x 34mm dot matrix display.

6.3 ECP-OPT (Opacity sensor)

Description:

EcohoodTM ECP-OPT sensor heads operates up to 40 feet to meet most of the hood applications. Each head is equipped with sight glass resistant to cleaning or degreasers products. The Noveo auto-adaptative technology embedded in the paired Centris controller permits auto-zeroing and auto adjustment to environment and contamination of sensors.

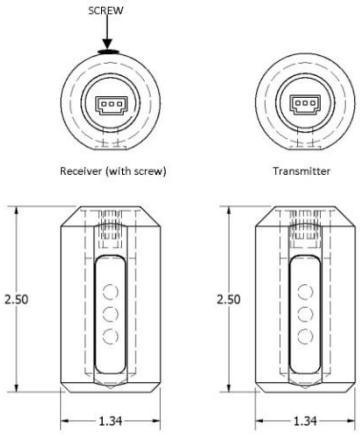
SPECIFICATIONS

Optical Sensors: 3-40 feet range

Operating Temperature: -40°F to 250°F (-40°C to 125°C)

Head Material: Solid Stainless Steel with Glass window.

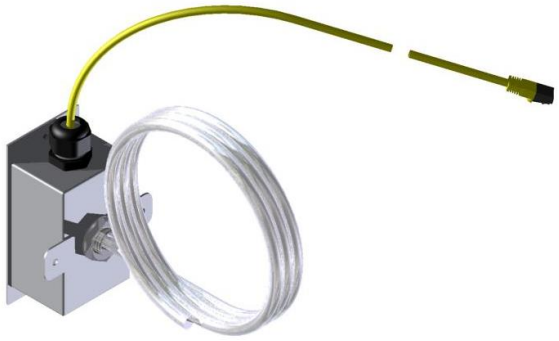
DETAILS



6.4 ECP-TMP (Temperature sensor)

Description:

ECP-TMP incorporates four evenly spaced sensor modules over 6, 12 or 24 foot (1.8, 3.6 or 7.2 meter) lengths. The modules are interconnected with plenum rated cable strain relieved across the sensor with an aluminium bracket. The sensor modules are environmentally sealed. An ULC connector is provided for a through hood installation.



FEATURES

3/8" (9 mm) bendable thin wall aluminum probe with plenum rated cable. Incorporates rugged aluminum sensor strain reliefs, four fast response environmentally sealed sensor modules and plenum rated cable for reliable performance.

MODELS

ECP-TMP-6	(6 feet probe)
ECP-TMP-12	(12 feet probe)
ECP-TMP-24	(24 feet probe)

SPECIFICATIONS

Thermistor Sensors: ± 0.2°C interchangeability @ 77°F (25°C)

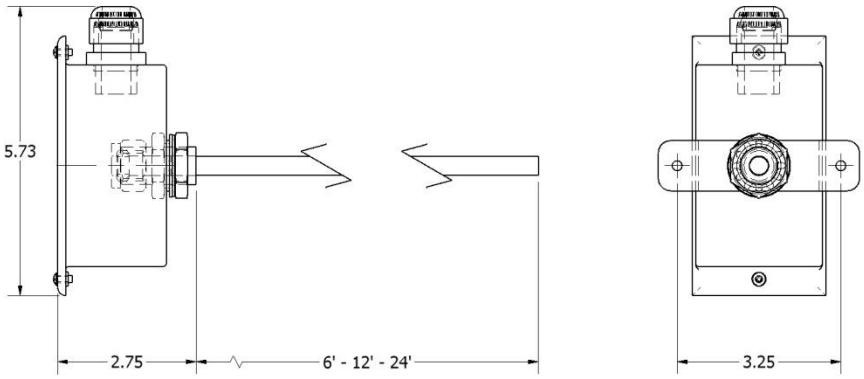
Operating Temperature: -40°F to 250°F (-40°C to 125°C)

Bulkhead Fitting: ULC connector

Steel NEMA-4/IP-65: 18 Ga. C.R. steel, powder coated.

Probe Material: 3/8-inch aluminum coil.

DETAILS



6.5 ECP-MTG (mounting kits)

Description:

ECP-MTG kits come in three different configuration to adapt to most hood applications whether the hood is free standing or installed between two walls. Each kit is complete with mounting brackets and screws to ease the installation work.

FEATURES

All rounded surfaces or chamfer to adequately protect from dust or grease accumulation.

MODELS

ECP-MTG-E (External mounting)

ECP-MTG-I (Internal mounting)

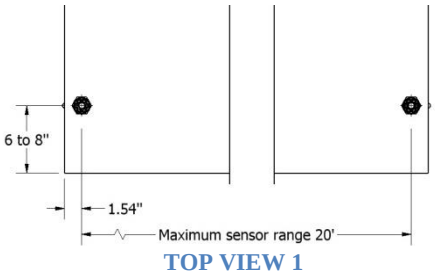
SPECIFICATIONS

Tubes and supports: All Stainless Steel

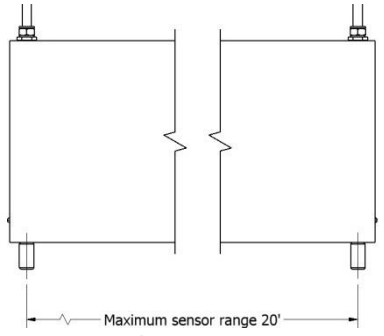
Bulkhead Fitting (internal mounting kit only): ULC connector

DETAILS

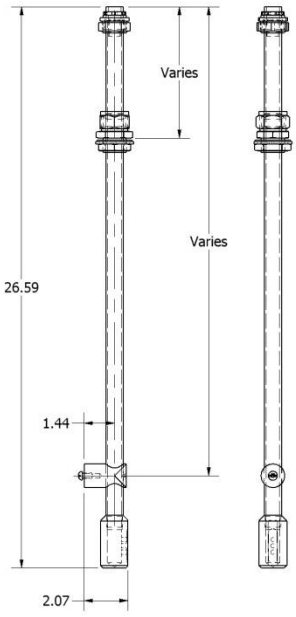
Vertical installation



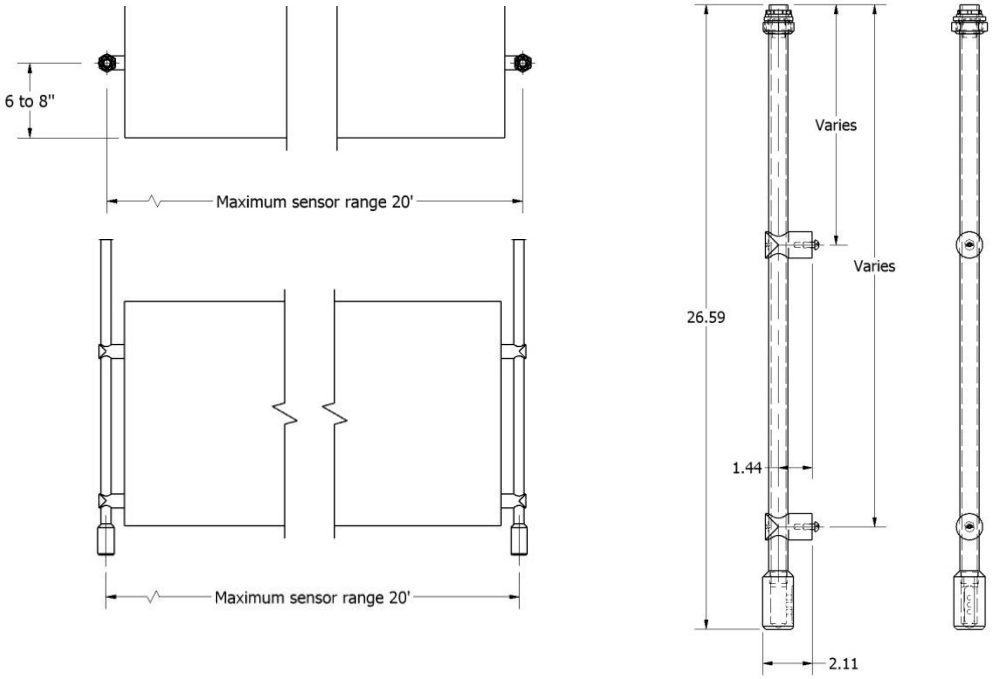
TOP VIEW 1



FRONT VIEW 1



External installation



7 TROUBLESHOOTING

7.1 Questions and answers

How can I reduce the odours migrating to dining area?

Odours migration is caused by an imbalance of the system. Increase the minimum exhaust rate setting using the menu configurations.

The system does not react normally.

Check for ambient lights. Replace incandescent light bulb by fluo-compact, or L.E.D. bulb. Check for interaction with the outdoor lighting. Receiver head should not be installed facing the outdoor lighting or window.

The system is continuously at the maximum exhaust rate.

Check for obstruction (pipe, boxes, etc) between the sensor heads. Check for head misalignment.

7.2 Service recommendations

For service, please call your local Noveo service representative.

To contact NOVEO, Tel: 450-444-2044 toll free 1-877-314-2044
Fax: 450-955-3555,
Email : info@noveo.ca

Noveo Technologies Group inc.
2389, Principale Unit 208
Dunham, Qc, Canada
J0E 1M0

8 MAINTENANCE

8.1 RECOMMENDED MAINTENANCE SCHEDULE

NOTE: ***When cleaning and decontaminating Noveo components always use standard detergents and degreasers that are approved for commercial hood cleaning procedures*.**

WEEKLY:

Check for optical sensors cleanliness.

Check for obstructions in the optical sensor path.

MONTHLY:

Check cleanliness of the temperature sensor.

Test by-pass operation.

EVERY 3 MONTHS:

Check fan operation.

Check belt wear.

Check filter in the VFD, (if located near cooking area).

Check amperage of motor and readjust overload protection settings if required.

ANNUALLY:

Check air balancing.

Check the minimum and maximum exhaust setting

9 WARRANTY

9.1 Limited warranty

Noveo guarantees the equipment and parts installed for one period of one (1) year after the original installation date. The guarantees on the components manufactured by a manufacturer other than Noveo are covered by the guarantee of the original manufacturer. The parts prone to wear are not guaranteed.

Damages resulting from a cause beyond control (an unforeseen and irresistible event external making impossible to respect an engagement);(b) delays caused by governmental action, strike, fire, flight, flood, insurrection, war, spite or any other event independent of the will of Noveo; (c) the malfunction partial or total of the equipment caused by the parts damaged because of the lack of power, cause beyond control, normal disasters, natural disasters or climatic conditions; (d) repairs or installation by the unauthorized people; (e) lack to follow instructions of use, care or maintenance of the equipment. In all the cases, the responsibility for Noveo is limited to the purchase price for the equipment and the parts sold by Noveo.

9.2 Liability limits

The manufacturer is not responsible for:

Any costs resulting from a failure if the installation, commissioning, repair, alteration, or ambient conditions of the system do not fulfil the requirements specified in the documentation delivered with the unit and other relevant documentation.

Units subjected to misuse, negligence or accident.

Units comprised of materials provided or designs stipulated by the purchaser. In no event shall the manufacturer, its suppliers or subcontractors be liable for special, indirect, incidental or consequential damages, losses or penalties. This is the sole and exclusive warranty given by the manufacturer with respect to the equipment and is in lieu of and excludes all other warranties, express or implied, arising by operation of law or otherwise, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose.

APPENDIX A

ECP-DP ACTUAL COLOUR

CODED CAT #5

DETAILED CABLE CONNECTIONS

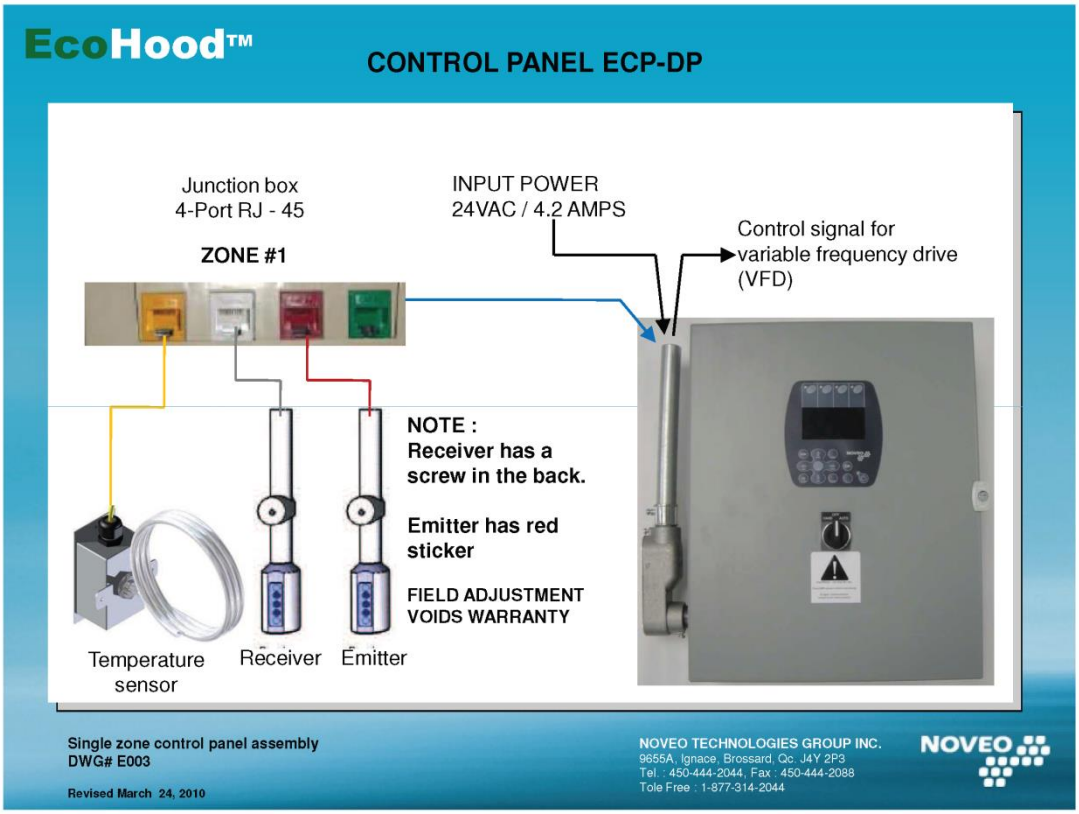
FOR ONE, TWO, THREE

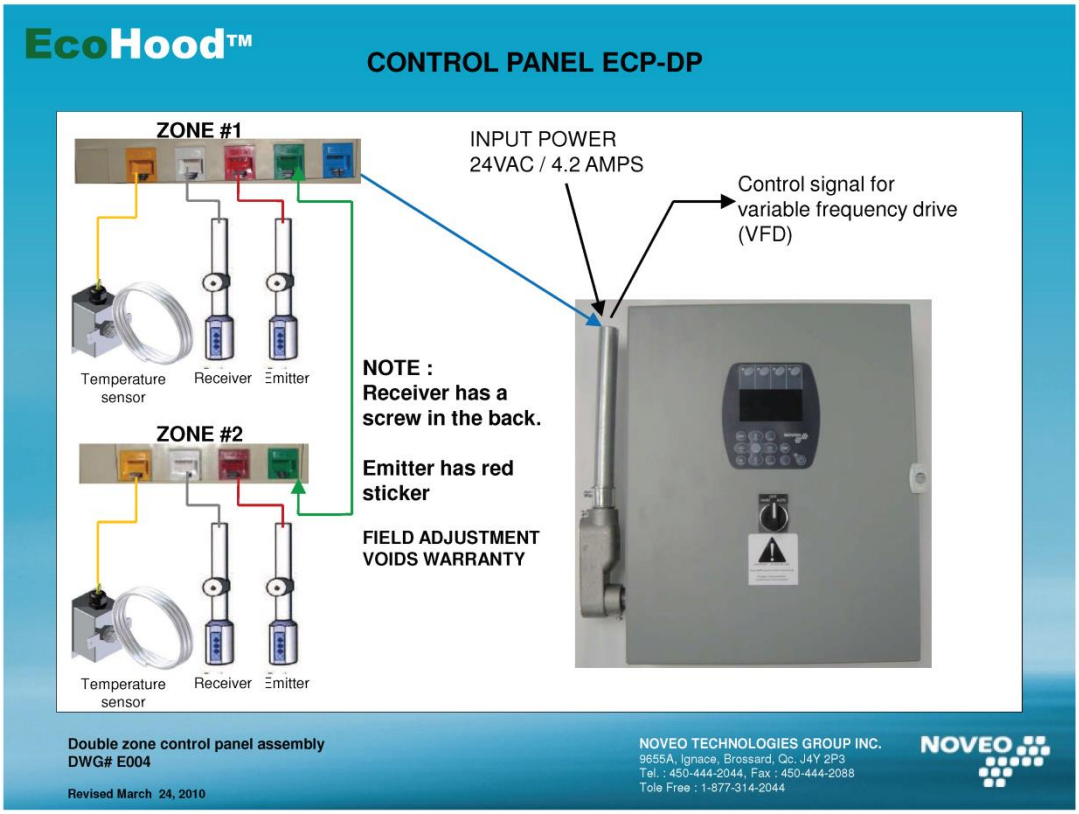
ZONE INSTALLATIONS

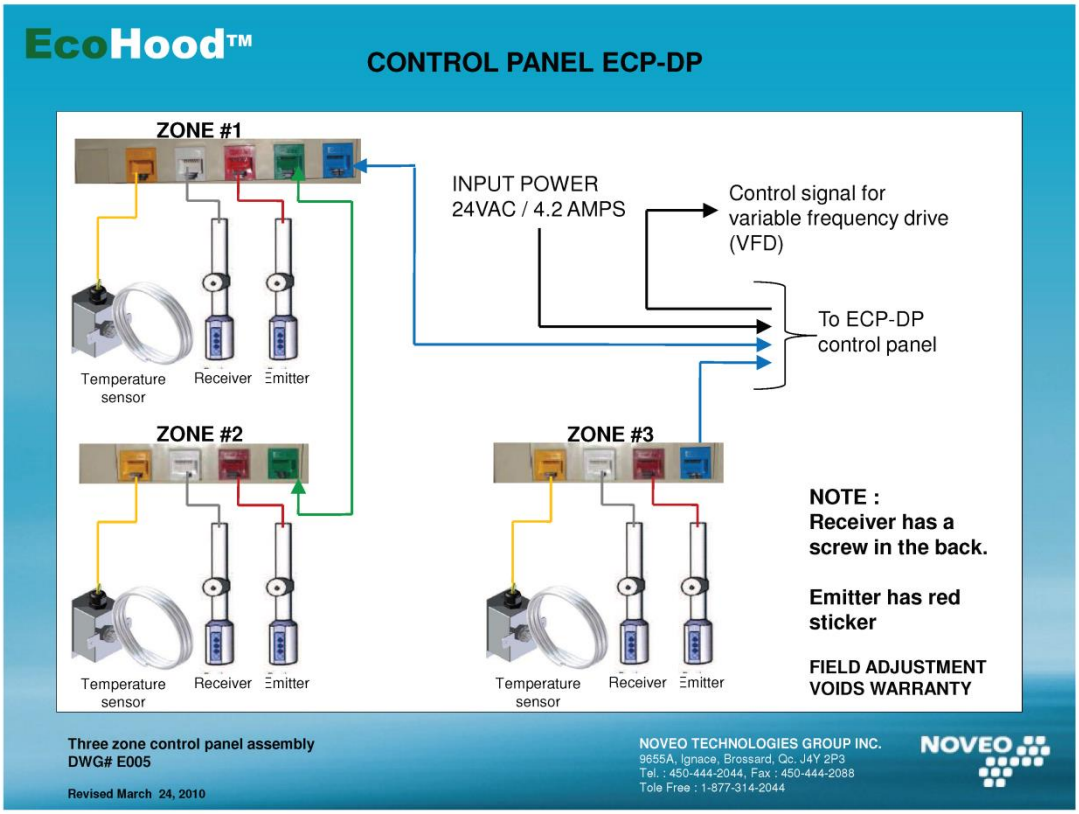
PLUS

COLOURED WIRE DETAIL

CONNECTIONS TO THE VFD


EcoHood™
CONTROL PANEL ECP-DP
Junction box
4-Port RJ - 45
ZONE #1
INPUT POWER
24VAC / 4.2 AMPS
Control signal for
variable frequency drive
(VFD)
NOTE :
Receiver has a
screw in the back.
Emitter has red
sticker
FIELD ADJUSTMENT
VOIDS WARRANTY
Temperature
sensor
Receiver
Emitter
Single zone control panel assembly
DWG# E003
Revised March 24, 2010
NOVEO TECHNOLOGIES GROUP INC.
9655A, Ignace, Brossard, Qc. J4Y 2P3
Tel. : 450-444-2044, Fax : 450-444-2088
Tole Free : 1-877-314-2044
NOVEO


EcoHood™
CONTROL PANEL ECP-DP
ZONE #1
INPUT POWER
24VAC / 4.2 AMPS
Control signal for
variable frequency drive
(VFD)
Temperature
sensor
Receiver
Emitter
NOTE :
Receiver has a
screw in the back.
Emitter has red
sticker
FIELD ADJUSTMENT
VOIDS WARRANTY
ZONE #2
Temperature
sensor
Receiver
Emitter
Double zone control panel assembly
DWG# E004
Revised March 24, 2010
NOVEO TECHNOLOGIES GROUP INC.
9655A, Ignace, Brossard, Qc. J4Y 2P3
Tel. : 450-444-2044, Fax : 450-444-2088
Tole Free : 1-877-314-2044
NOVEO


EcoHood™
CONTROL PANEL ECP-DP
ZONE #1
INPUT POWER
24VAC / 4.2 AMPS
Control signal for
variable frequency drive
(VFD)
To ECP-DP
control panel
Temperature
sensor
Receiver
Emitter
ZONE #2
ZONE #3
NOTE :
Receiver has a
screw in the back.
Emitter has red
sticker
FIELD ADJUSTMENT
VOIDS WARRANTY
Three zone control panel assembly
DWG# E005
Revised March 24, 2010
NOVEO TECHNOLOGIES GROUP INC.
9655A, Ignace, Brossard, Qc. J4Y 2P3
Tel. : 450-444-2044, Fax : 450-444-2088
Tole Free : 1-877-314-2044
NOVEO

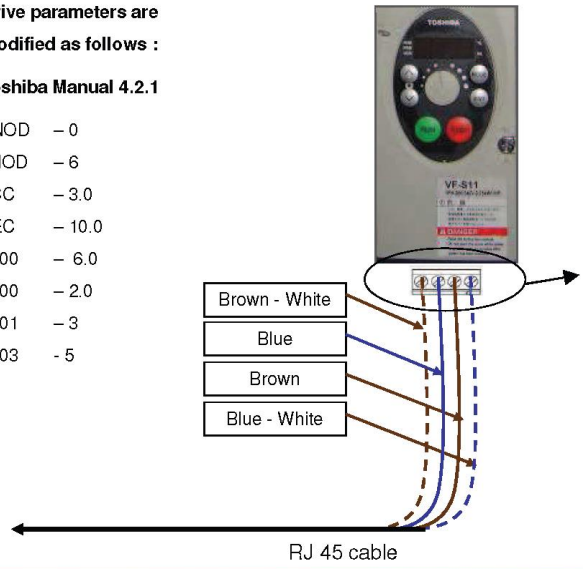
EcoHood™

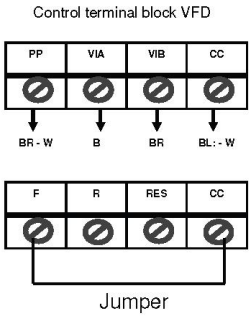
CONTROL PANEL ECP-DP

Drive parameters are modified as follows :

Toshiba Manual 4.2.1

CNOD	– 0
FNOD	– 6
ACC	– 3.0
DEC	– 10.0
F100	– 6.0
F300	– 2.0
F301	– 3
F303	- 5



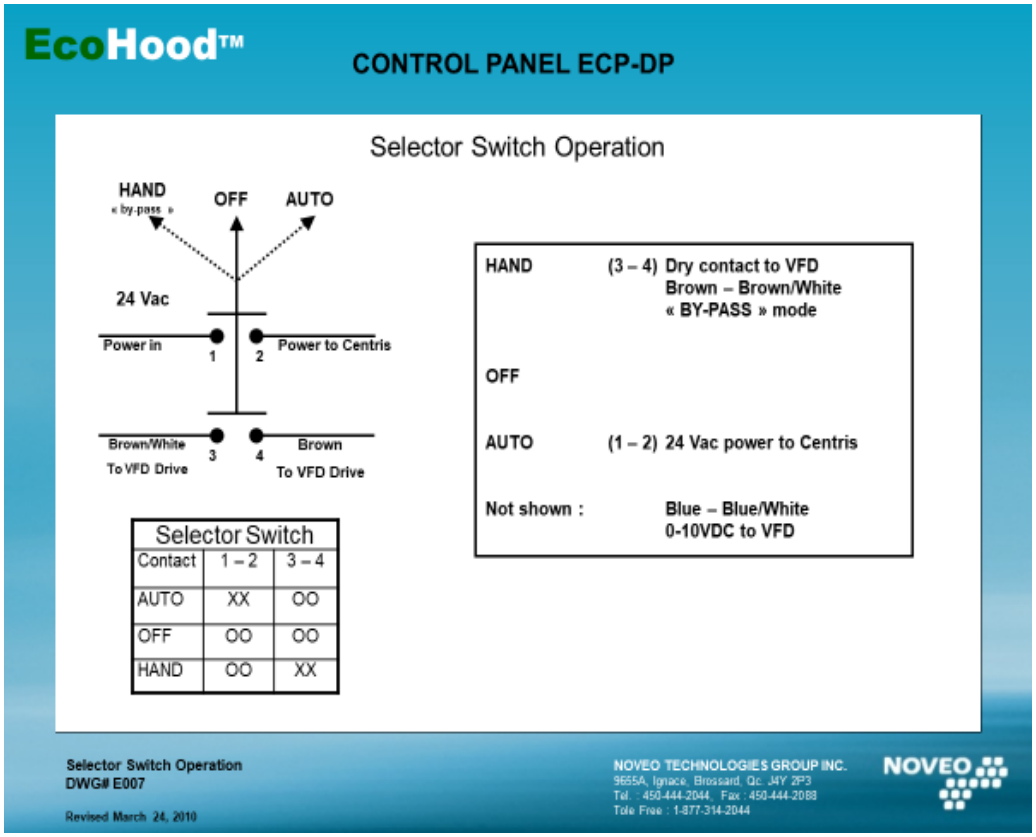


Toshiba VF-S11 VFD Connection Arrangement
DWG# E006

Revised March 24, 2010

NOVEO TECHNOLOGIES GROUP INC.
9655A, Ignace, Brossard, Qc. J4Y 2P3
Tel. : 450-444-2044, Fax : 450-444-2088
Tole Free : 1-877-314-2044

NOVEO

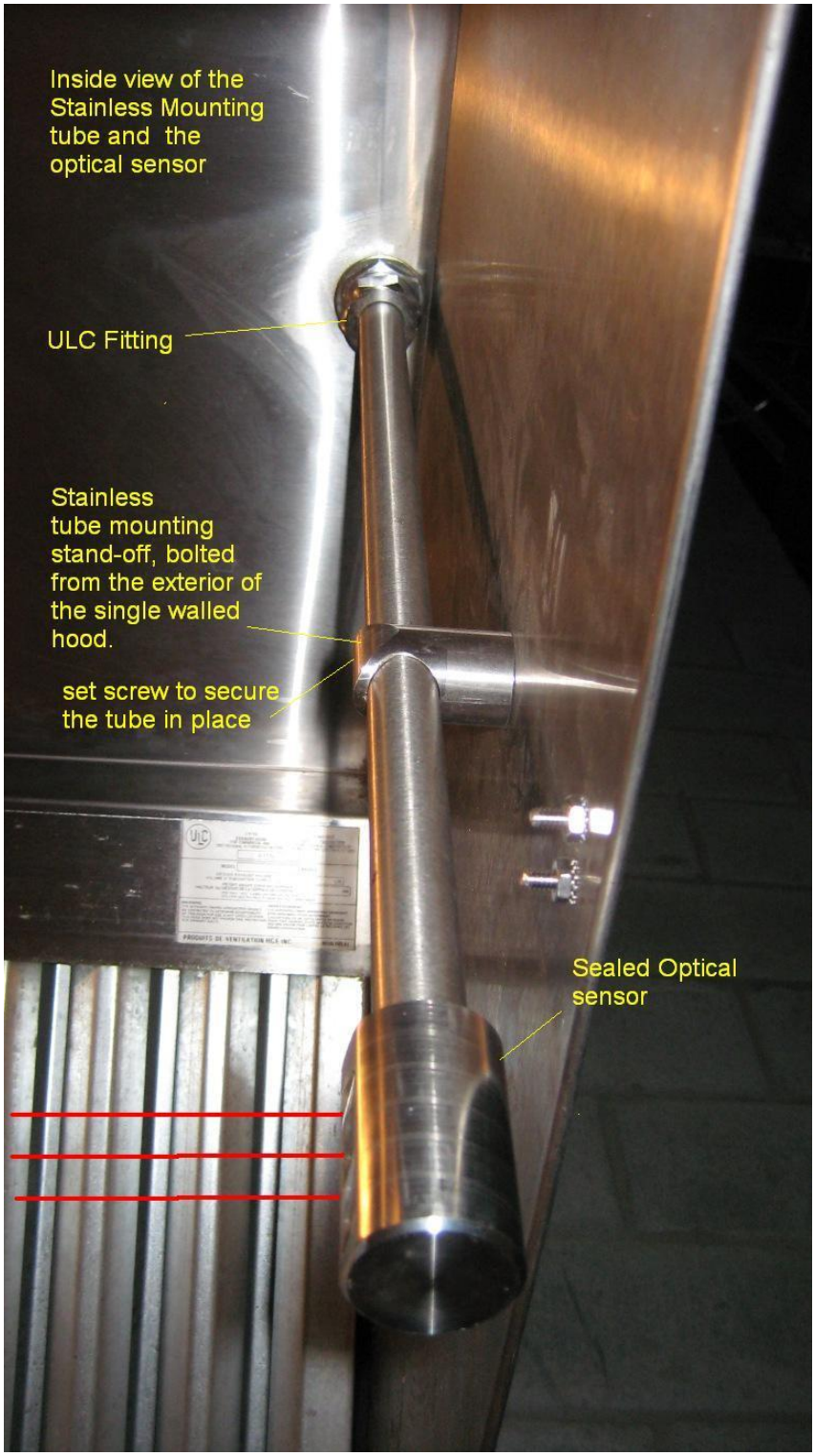

EcoHood™
CONTROL PANEL ECP-DP
Selector Switch Operation
HAND
« by-pass »
OFF
AUTO
24 Vac
Power in
1
2
Power to Centris
Brown/White
To VFD Drive
3
4
Brown
To VFD Drive
Selector Switch
Contact | 1 – 2 | 3 – 4
AUTO | XX | OO
OFF | OO | OO
HAND | OO | XX
HAND (3 – 4) Dry contact to VFD
Brown – Brown/White
« BY-PASS » mode
OFF
AUTO (1 – 2) 24 Vac power to Centris
Not shown : Blue – Blue/White
0-10VDC to VFD
Selector Switch Operation
DWG# E007
Revised March 24, 2010
NOVEO TECHNOLOGIES GROUP INC.
9655A, Ignace, Brossard, Qc. J4Y 2P3
Tel. : 450-444-2044, Fax : 450-444-2088
Tole Free : 1-877-314-2044
NOVEO

APPENDIX B

DETAILED PHOTOS

OF TYPICAL OPTICAL

SENSOR INSTALLATIONS:



TYPICAL OPTICAL SENSOR INTERNAL MOUNT DETAIL

TYPICAL OPTICAL SENSOR EXTERNAL MOUNT DETAIL