SIEMENS

Installation Instructions
Document No. 570-118
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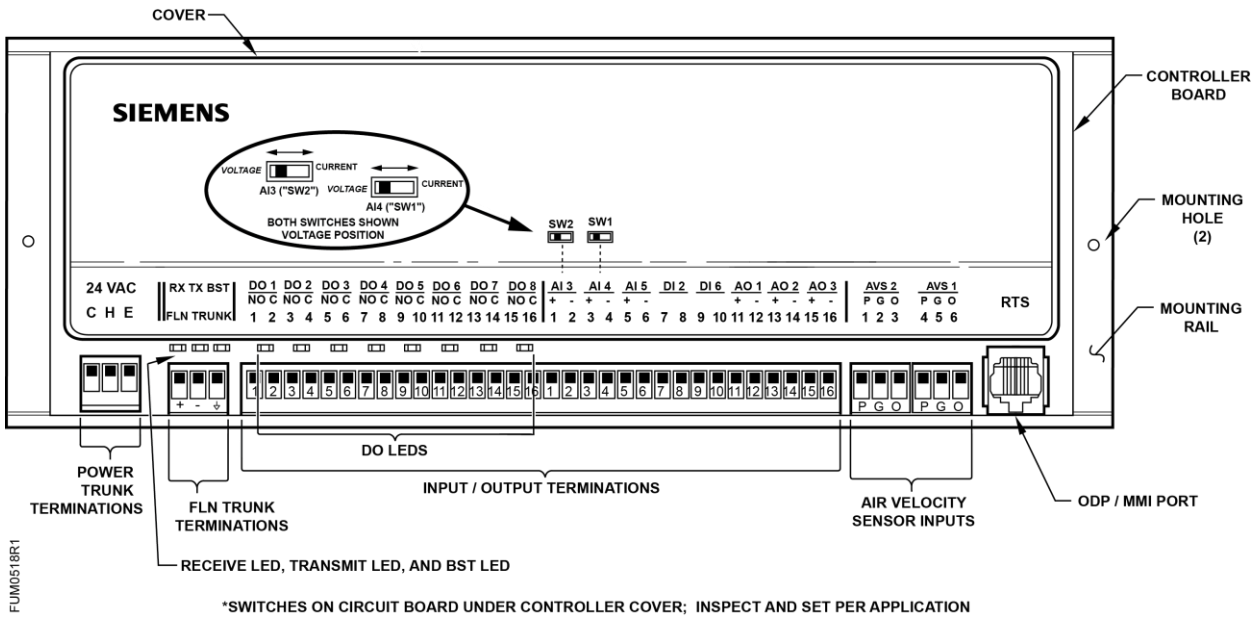
BACnet Fume Hood Controller



Generic Controller I/O Layout. See Wiring Diagram for application specific details.

Control Applications

6740, 6741 and 6742

Product Description

These instructions explain how to field install or replace the BACnet Fume Hood Controller FHC.

This BACnet Fume Hood Controls a Fast-acting Damper or Venturi Air Valve to maintain control of a chemical fume hood with up to 2 sashes. It uses fast-acting electronic actuators (shipped separately) to control the exhaust control device.

⚠ WARNING

The application cannot detect a broken wire to the analog input for the second sash.

An external sash aggregating device should be used to calculate the face area for all fume hoods with more than one sash.

This controller supports up to two Offboard AVS signals. Offboard Air Module(s) (OAM) house AVS transducers and send signals to the AVS input(s) on the controller board. The controller can operate stand-alone, with a field panel, or as part of a network.

Product Numbers

BACnet Fume Hood Controller Applications 6740, 6741, 6742	570-00701PA
This controller requires Offboard Air Module(s) (ordered and shipped separately)	
Offboard Air Module – order separately	550-819B
Operator Display Panel II (ODP II)	575-820A
Power Module	AQM2200
Siemens fast-acting Lab Electronic Actuator(s) – (order and ship separately)	GNP191.1U

Shipping carton includes a controller assembly, a mounting rail, and two self-tapping/drilling screws.

⚠ CAUTION

Keep the unit in its static-proof bag until installation.

Otherwise, you run the risk of damage to the printed circuit board from electrostatic discharge.

Accessories

Room Sensor Cable 25 ft.	588-100A
Room Sensor Cable 50 ft.	588-100B
Vertical Sash Sensor	
50 inch range	546-04000
80 inch range	546-04001

Warning/Caution Notation

⚠ WARNING

Personal injury/loss of life may occur if you do not follow the procedures as specified.

⚠ CAUTION

Equipment damage or loss of data may occur if you do not follow the procedures as specified.

Required Tools and Equipment

- Small flat blade screwdriver
- 3/8-inch open end wrench
- Needle nose pliers
- 1/4-inch poly tubing

Prerequisites

- Wiring conforms to NEC and local codes and regulations. For further information see the *Wiring Guidelines Manual*.
- 24 Vac Class II power available.
- Supply power to the unit is OFF.
- Any application specific hardware or devices installed.
- Fume Hood Controller Enclosure is mounted and wiring has been roughed-in.
- Operator Display Panel is installed and cable pulled to location of controller.

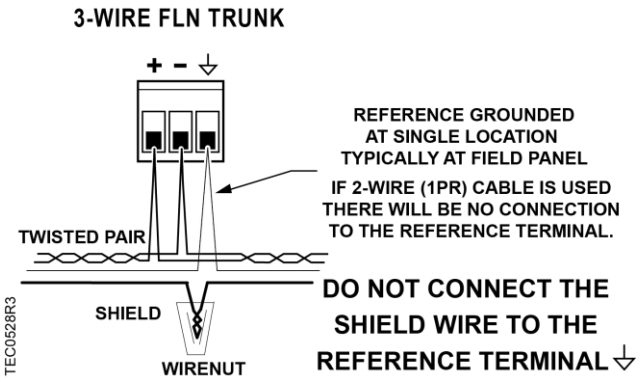
Expected Installation Time

30 minutes

Installation Instructions

NOTE:
All wiring must conform to national and local codes and regulations (NEC, CE, etc.).

1. Secure the mounting rail in the controller's desired location.
2. Place the ESD wrist strap on your wrist and attach it to a good earth ground.
3. Remove the controller from the static proof bag and snap it into place on the mounting rail.
4. If the controller will be used with a field panel, disconnect the field level network (FLN) trunk from the field panel.
5. Wire the FLN trunk to the controller. After all controllers are connected to the FLN, reconnect the FLN trunk to the field panel.



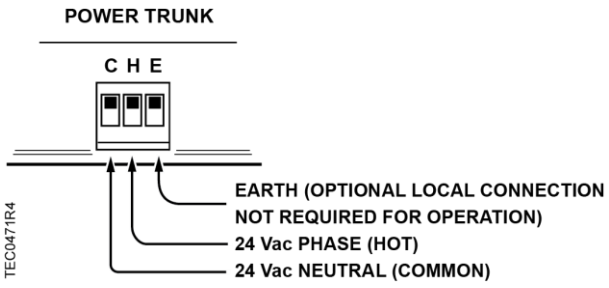
6. If the controller requires Offboard Air Modules, install them now following the appropriate Installation Instructions (see *Product Numbers*).

7. Connect the point wiring (see *Wiring Diagrams*).

	⚠ CAUTION
	DO Wiring – Each DO provides a Normally Open (NO) terminal and a Common (C) terminal. To reduce noise and the potential for ground loops, both connections of a 24 Vac load must be wired directly to the DO terminal on the controller board.

8. Plug the operator display cable into the ODP port.

9. Connect the power trunk. DO NOT apply power to the controller without first consulting the specialist.



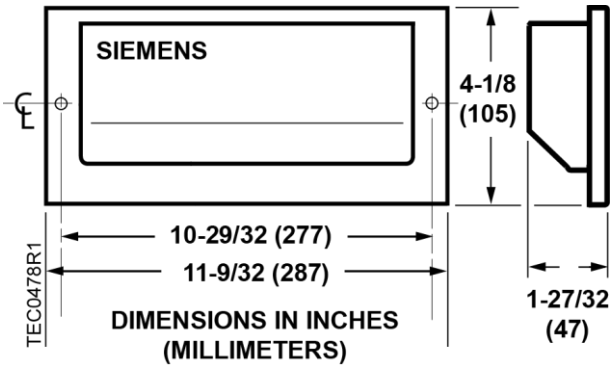
	⚠ CAUTION
	It is important that the neutral that supplies the TEC must be earth grounded at the source of the 24 Vac power. Possible erratic equipment operation or damage if neutral is not grounded.

10. For a Fast Acting Lab Electronic Actuator, verify that the switches are set as shown in Figure *Switch Settings for the Fast Acting Lab Electronic Actuator*.

Switch Settings for the Fast Acting Lab Electronic Actuator.

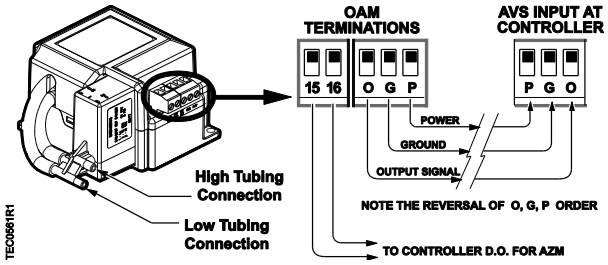
	⚠ CAUTION
	This actuator requires a maximum of 20 VA, 24 Vac source. DO NOT connect any other non-isolated devices to the transformer that powers the electronic actuator or the hot water valve actuator.

The installation is complete.



Dimensions.

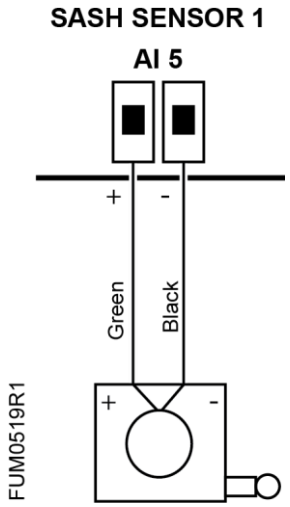
Wiring Diagrams



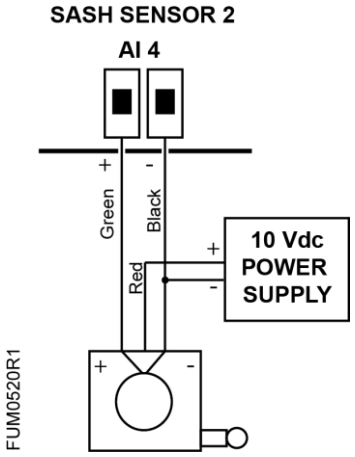
Offboard Air Module Wiring.

	⚠ CAUTION
	The FHC-OAVS has two terminal blocks with terminations numbered identically (terminations 1 through 16). DO NOT get these mixed up with each other. If the FHC-OAVS is not connected as shown, it is not resistant to electrical surges. It is also susceptible to interference from other equipment.

	⚠ CAUTION
	A separate power supply is required if a 4-20 mA sensor is used. Failure to follow wiring precautions will result in equipment damage.



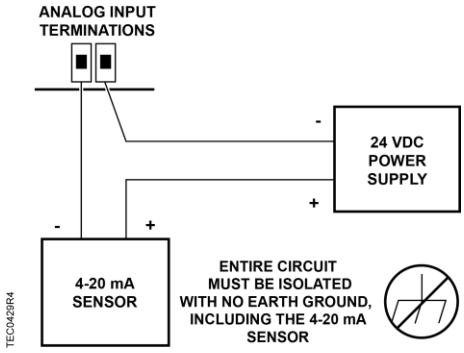
Wiring for AI5: Sash Sensor 1.



Wiring for AI4: Sash Sensor 2.

	⚠ WARNING
	The application cannot detect a broken wire to the analog input for the second sash. An external sash aggregating device should be used to calculate the face area for all fume hoods with more than one sash.

	⚠ WARNING
	Must use external 10 Vdc power supply. Do not power AI from an onboard AO that is forced to 10 volts.



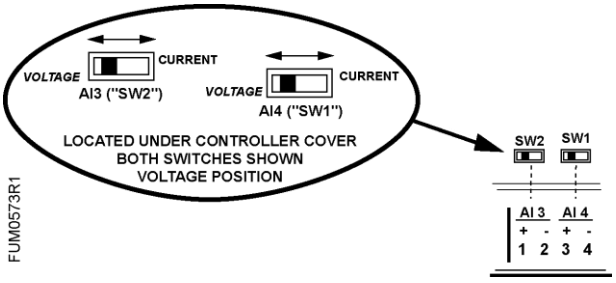
Wiring for AI with a 4 to 20 mA Sensor.

⚠ CAUTION

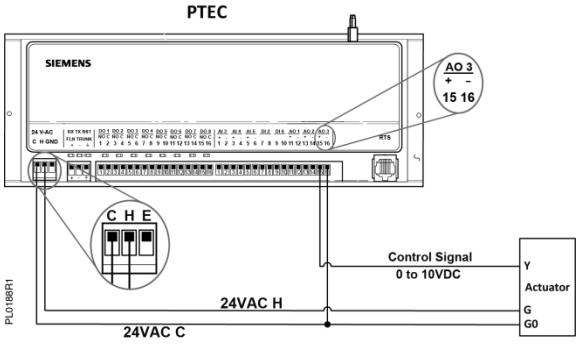
Each 4-20 mA sensor requires a SEPARATE dedicated power limited 24 Vdc power supply.

DO NOT use the same transformer to power both the sensor and the controller.

NOTE:
If the voltage/current switch is set to current and a 4 to 20 mA sensor is connected to an AI, then special wiring requirements must be followed.



NOTE:
When wiring any actuator that uses a 0 to 10V control signal and ties AC neutral to DC common, an additional wire **must** connect the actuator AC neutral to the DC common of the PTEC/TEC AO being used to control the actuator.



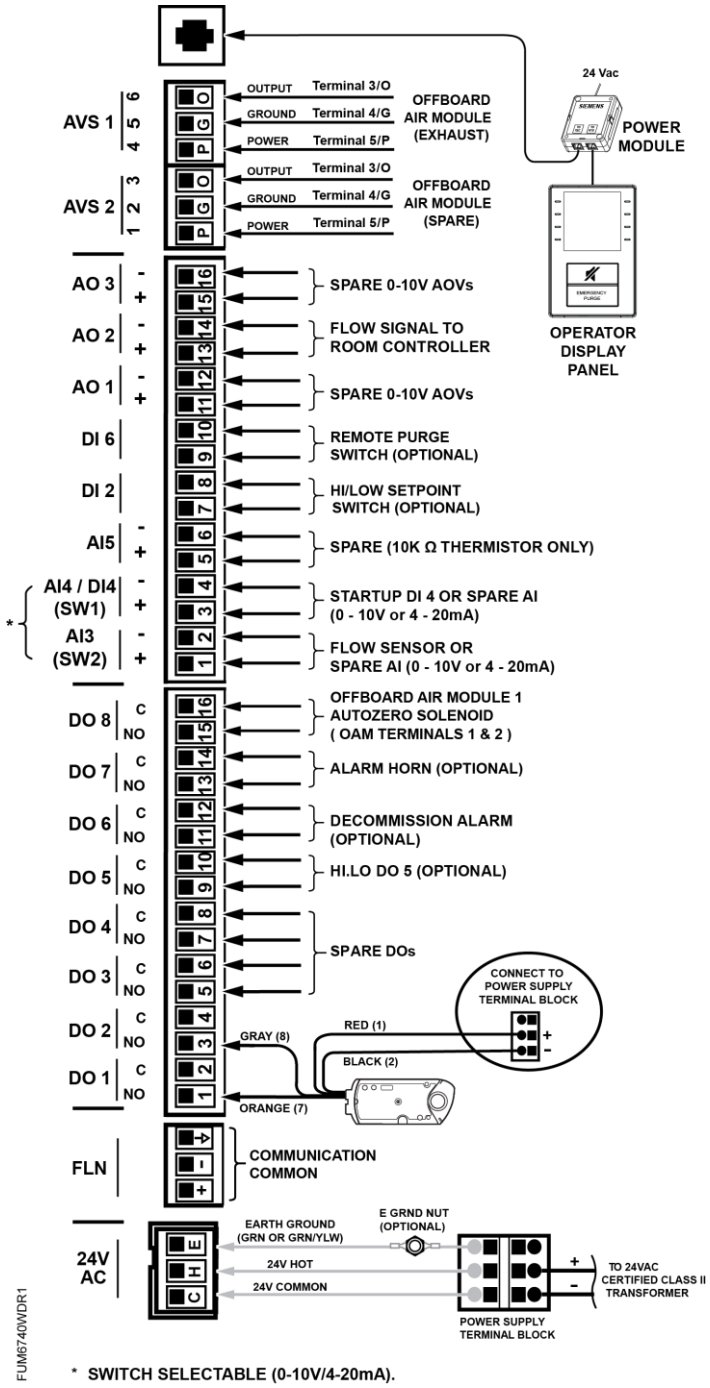
24 Vac Modulating Control.

Actuator Symbol	TEC Connection	Function	Terminal Connection	Standard Color
1	H	Supply (SP)	G	Red
2	C	Neutral (SN)	G0	Black
8	AO3 – 15 (+)	0 to 10V input signal	Y	Gray
--	C to AO3 16 (-)	Common jumper	--	--

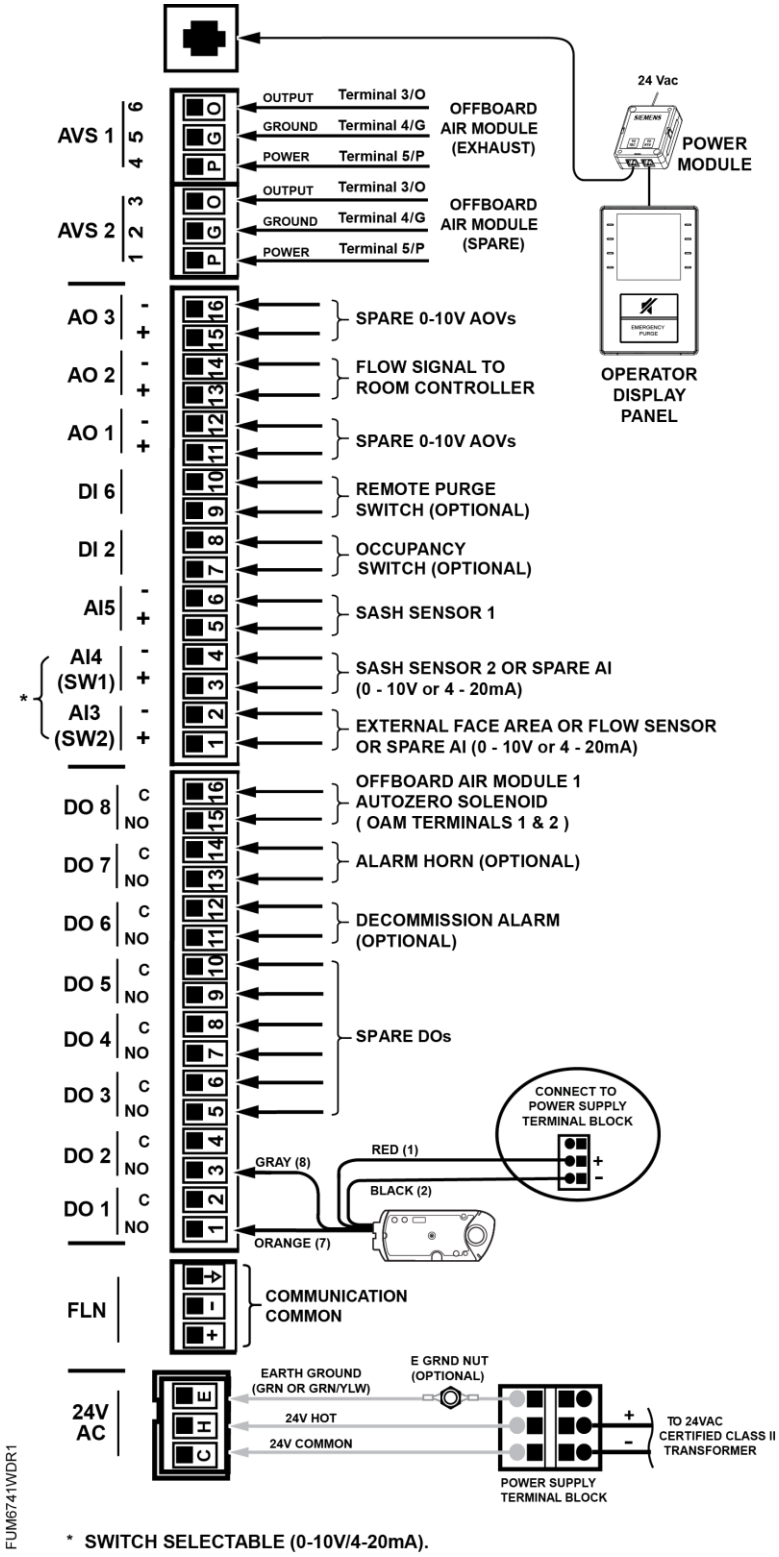
NOTE:
The controller's DOs control 24 Vac loads only. The maximum rating is 12 VA for each DO. An external interposing relay is required for any of the following:

- VA requirements higher than the maximum
- 110 or 220 Vac requirements
- DC power requirements
- Separate transformers used to power the load

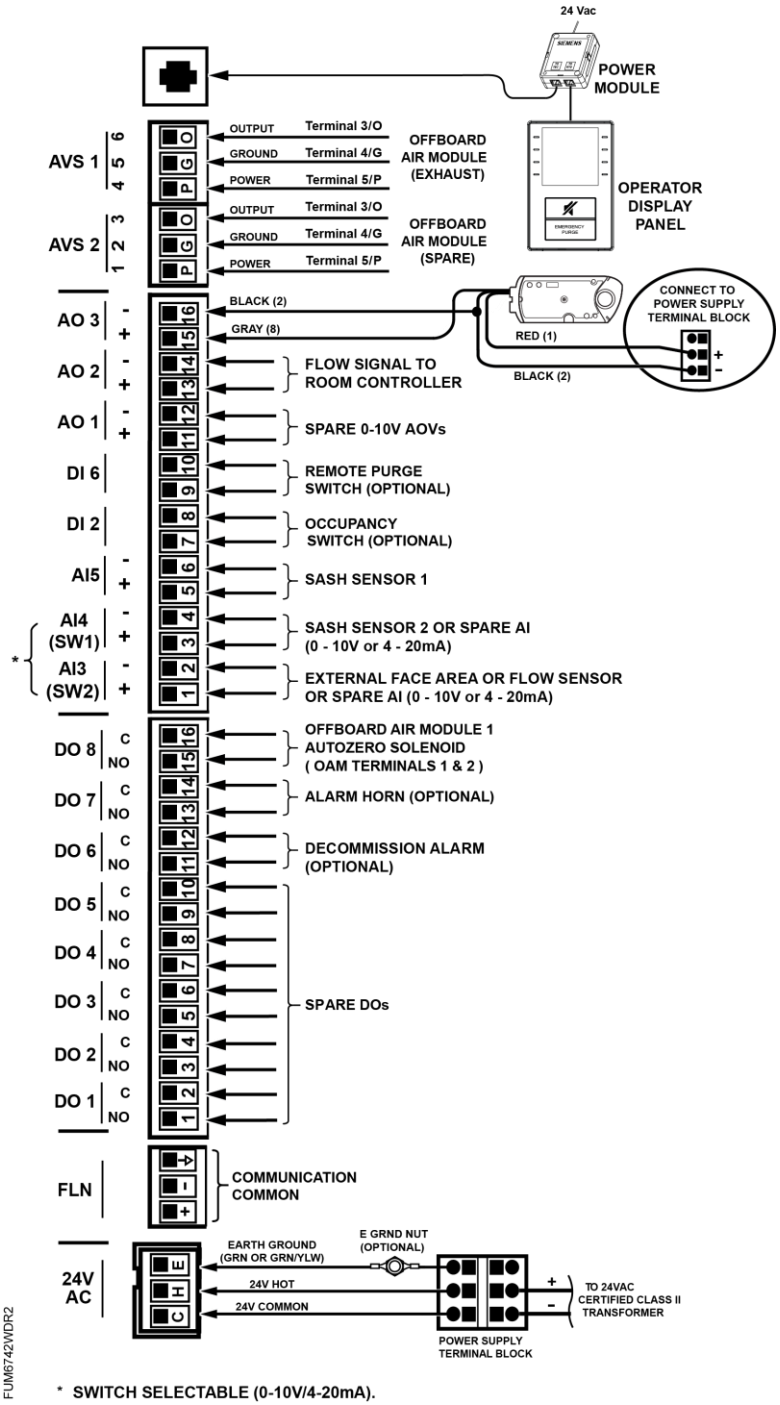
(for example, part number 540-147, Terminal Equipment Controller Relay Module)



Application 6740 Wiring Diagram.



Application 6741 Wiring Diagram.



Application 6742 Wiring Diagram.

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