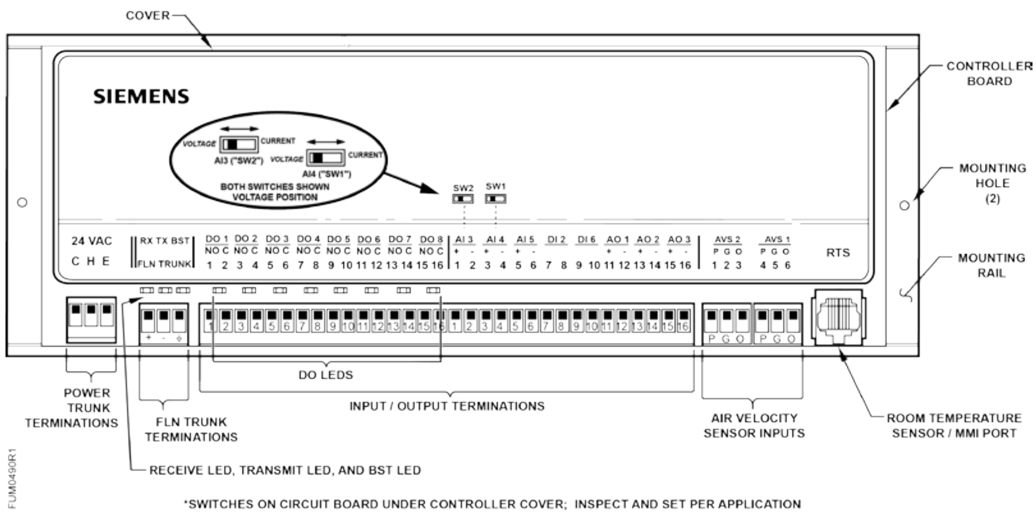
SIEMENS

Installation Instructions
Document No. 570-001
September 22, 2014

Smoke Control Listed
BACnet LCM-OAVS Slow Actuation



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

Control Applications

6722, 6723, 6728, 6729

Product Description

These instructions explain how to field install or replace the BACnet Laboratory Controller Module LCM.

This BACnet LCM-OAVS Variable Air Volume Room Pressurization Controller with HW Reheat and Slow Supply Damper Actuation, Slow Venturi Exhaust Actuation features VAV control of a laboratory room with one supply duct, one exhaust duct, and up to six Fume Hoods. It uses fast-acting electronic actuators (shipped separately) to control the supply and exhaust Venturi air valves.

This controller is built on a BACnet Programmable TEC (PTEC) platform that supports up to two Offboard AVS signals; however, Onboard AVS transducers are not supported. Offboard Air Module(s) (OAM) house AVS transducers and send signals to the AVS input(s) on the LCM OAVS board.

The LCM can operate stand-alone, with a field panel, or as part of a network.

Product Numbers

Smoke Control Listed BACnet LCM-OAVS Slow Actuation Venturi Supply/Venturi Exhaust Applications 6722 (RTS) 6728 (BTU)	570-802PK
Smoke Control Listed BACnet LCM-OAVS Slow Actuation Damper Supply/Damper Exhaust Applications 6723 (RTS) 6729 (BTU)	570-801PK
Offboard Air Module – two required, order separately	550-819B

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.

	ATTENTION
	Ne pas retirer la carte de son emballage avant son installion. Autrement, une décharge électrostatique peut endommager la carte équipée.

Accessories

Low cost temporary temperature sensor, 10K thermistor with RJ11 (1” long), that enables space control if the permanent room or duct sensor is not installed (pack of 25).	540-658P25
Duct Temperature Sensor, NTC 10K Ω Type 2, 3" Probe for Commissioning only	QAM1030.008P50

Parts for Smoke Control Compliance

Smoke Control Listed Large Equipment Controller Enclosure (Long board and ATEC controllers)	550-002K
UL Listed Class 2 transformer with 120/240/277/480 Vac 50/60 HZ 0.5A primary with hub and 24 Vac 96VA secondary w/ hub and circuit breaker	TR100VA004

NOTE:
For smoke control application, primary rating is only 120V/60 Hz.

Warning/Caution Notation

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

	AVERTISSMENT
	Risques de blessures graves ou mortelles, si vous ne suivez pas les procédures indiquées.

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

	ATTENTION
	Risques de dommages ou de pertes de données, si vous ne suivez pas les procédures indiquées.

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* (125-3002).
- Room temperature sensor installed (optional).
- 24 Vac Class 2 power available.
- Supply power to the unit is OFF.
- Any application specific hardware or devices installed.

NOTE:
A low-cost temporary RTS (540-658P25) is available that plugs into the RTS port on the controller, providing temperature input and actual space control until a permanent RTS is installed.

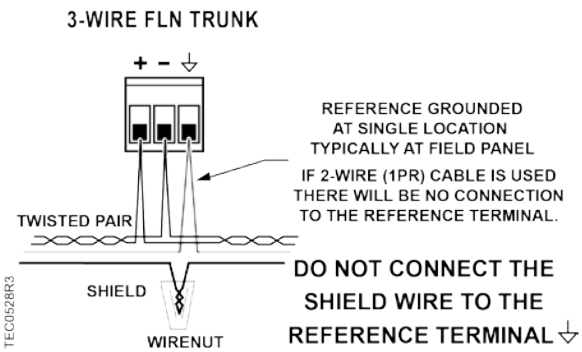
Expected Installation Time

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*).

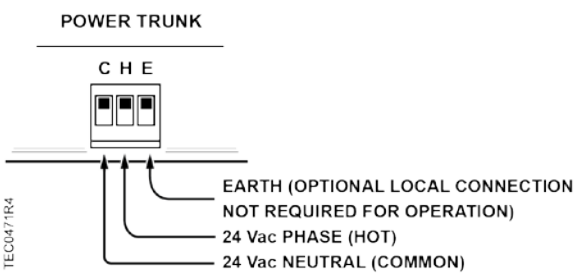
	CAUTION
	DO Wiring – Each DO provides a Normally Open (NO) terminal and a Common (C) terminal. To reduce noise and the potential for ground loops, both connections of a 24 Vac load must be wired directly to the DO terminal on the controller board.

	ATTENTION
	Raccordement des sorties numériques (DO) – chaque DO se compose d'une borne normalement ouverte (NO) et d'une borne commune (C). Afin de réduire les emissions sonores et d'éviter de créer des boucles de terre, les deux connexions à une charge de 24 Vac doivent être directement raccordées à la borne DO sur la carte contrôleur.

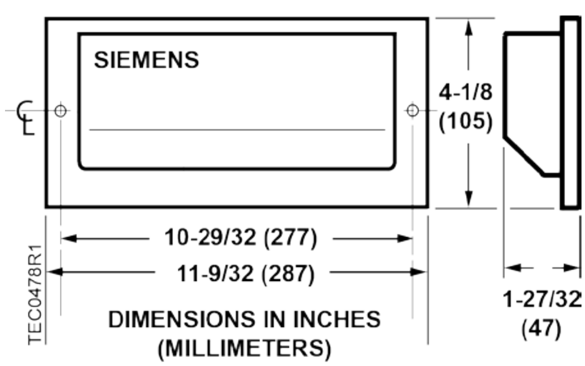
	CAUTION
	The fume hood flow module, the FHC, any 0 to 10 Vdc actuator used by the LCM, and the LCM cannot share a single power trunk. The preferred configuration for shared power trunks is to use one trunk for the FFM and FHC and another trunk for the actuator(s) and LCM.

⚠	⚠ ATTENTION
	Le module de débit de la hotte, le FHC, et tout actionneur 0…10 Vdc utilisé par le LCM, et le LCM ne peuvent pas partager un même tronc d'alimentation. La configuration préférée pour des troncs d'alimentation partagés utilise un tronc pour the FFM et le FHC, et un autre tronc pour le(s) actionneur(s) et le LCM.

8. Plug the room temperature sensor cable into the RTS port.
9. Connect the power trunk. DO NOT apply power to the controller without first consulting the specialist.



The installation is complete.



Dimensions.

Smoke Control Compliance

The following instructions and information apply if used for smoke control sequence.

1. Install Smoke Control Listed products, enclosure and transformer. See the *Product Numbers* and *Accessories* sections for more information.
2. Input Rating:

- 24V 60 HZ 60VA maximum

3. Digital Output (DO) are the only I/O suitable for smoke control application.
   Digital Output (DO) Electrical Ratings:

- 5VA per DO/ maximum 40 VA total

4. The room temperature sensor (RTS) is installed in the same room as the TEC.
5. Connection from the TEC to the field panel is a maximum 4000 feet, 24 AWG minimum.
6. Wiring Range:

- Transformer: primary 14 AWG
- 24 Vac Input Power: 14 to 18 AWG
- DO: AI: 18 to 20 AWG
- DI: 18 AWG
- LAN: 20 to 24 AWG
- RST: 24 AWG

All circuits are power limited; FLN is RS-485, RTS is RS-232. Digital Inputs (DI) are dry contacts.

See the following documents for more information on configuring smoke control applications:

- *Smoke Control Systems Application and Engineering Manual (*125-1806)
- *Smoke Control System Application Guide (*125-1816)
- *NFPA and UL Standards Relevant to Smoke Control System Application Guide (*125-1817)

NOTE:
The 24 Vac relay module is not applicable for smoke control application.

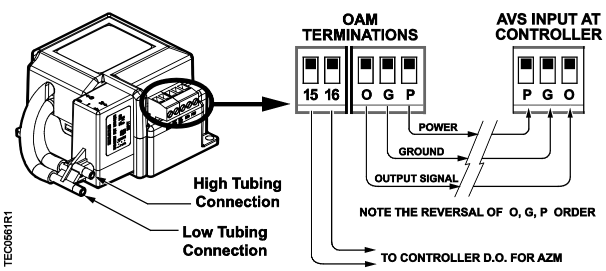
Wiring Diagrams

CAUTION

Controllers will be damaged/destroyed if offboard air module(s) are not wired correctly and power is applied.

ATTENTION

Les contrôleurs seront endommagés ou détruits si les modules d'air externes ne sont pas raccordés correctement et mis sous tension.



Offboard Air Module Wiring.

CAUTION

The LCM-OAVS has two terminal blocks with terminations numbered identically (terminations 1 through 16). DO NOT get these mixed up with each other.

If the LCM-OAVS is not connected as shown, it is not resistant to electrical surges. It is also susceptible to interference from other equipment.

ATTENTION

Le LCM-OAVS est muni de deux bornes dont les contacts sont numérotés à l'identique (contacts 1 à 16). NE PAS les confondre.

SI le LCM-OAVS n'est pas connecté comme indiqué, il n'est pas protégé contre les surtensions électriques. Il est également susceptible à des interférences émises par d'autres périphériques.

CAUTION

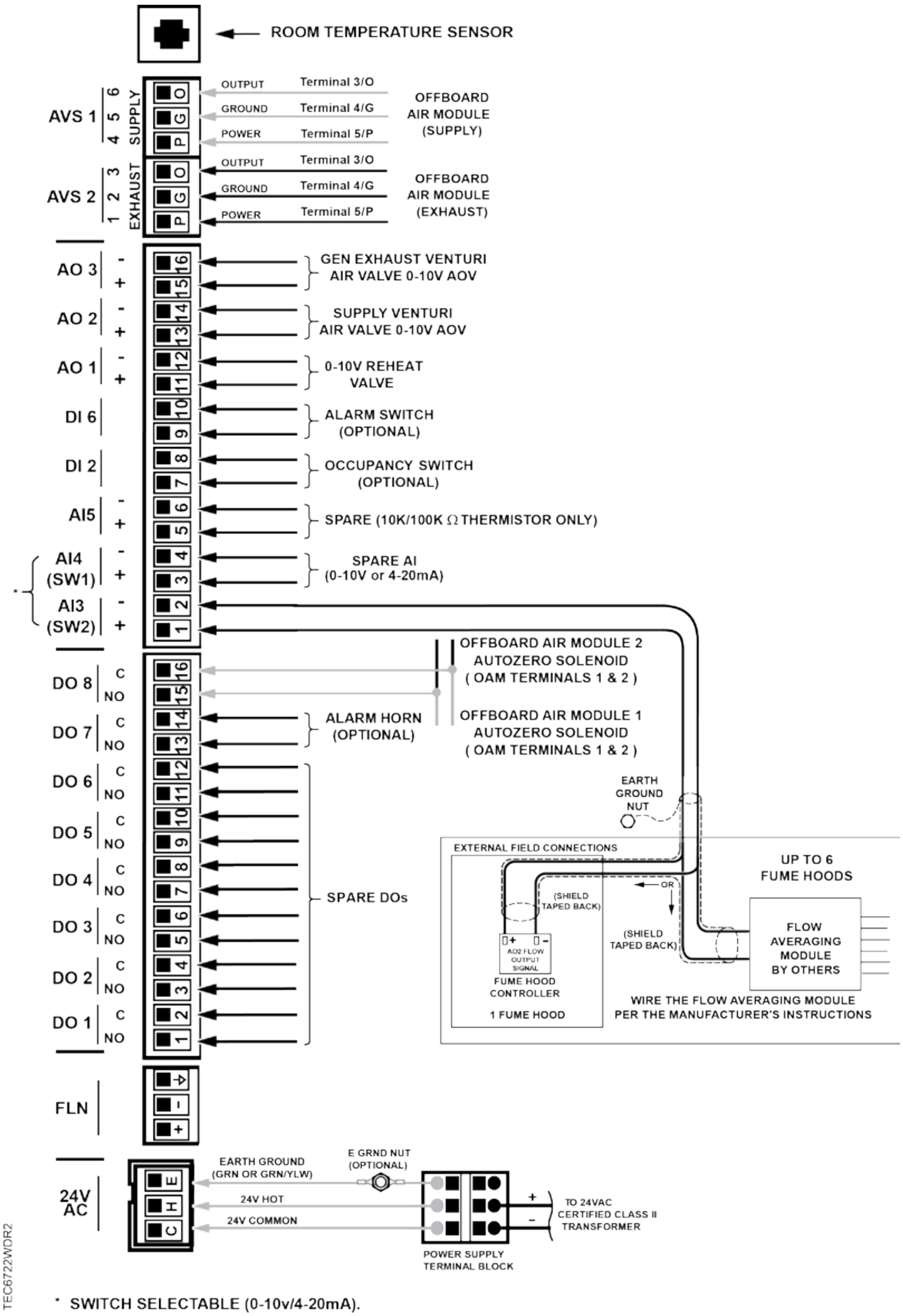
A separate power supply is required if a 4-20 mA sensor is used.

Failure to follow wiring precautions will result in equipment damage.

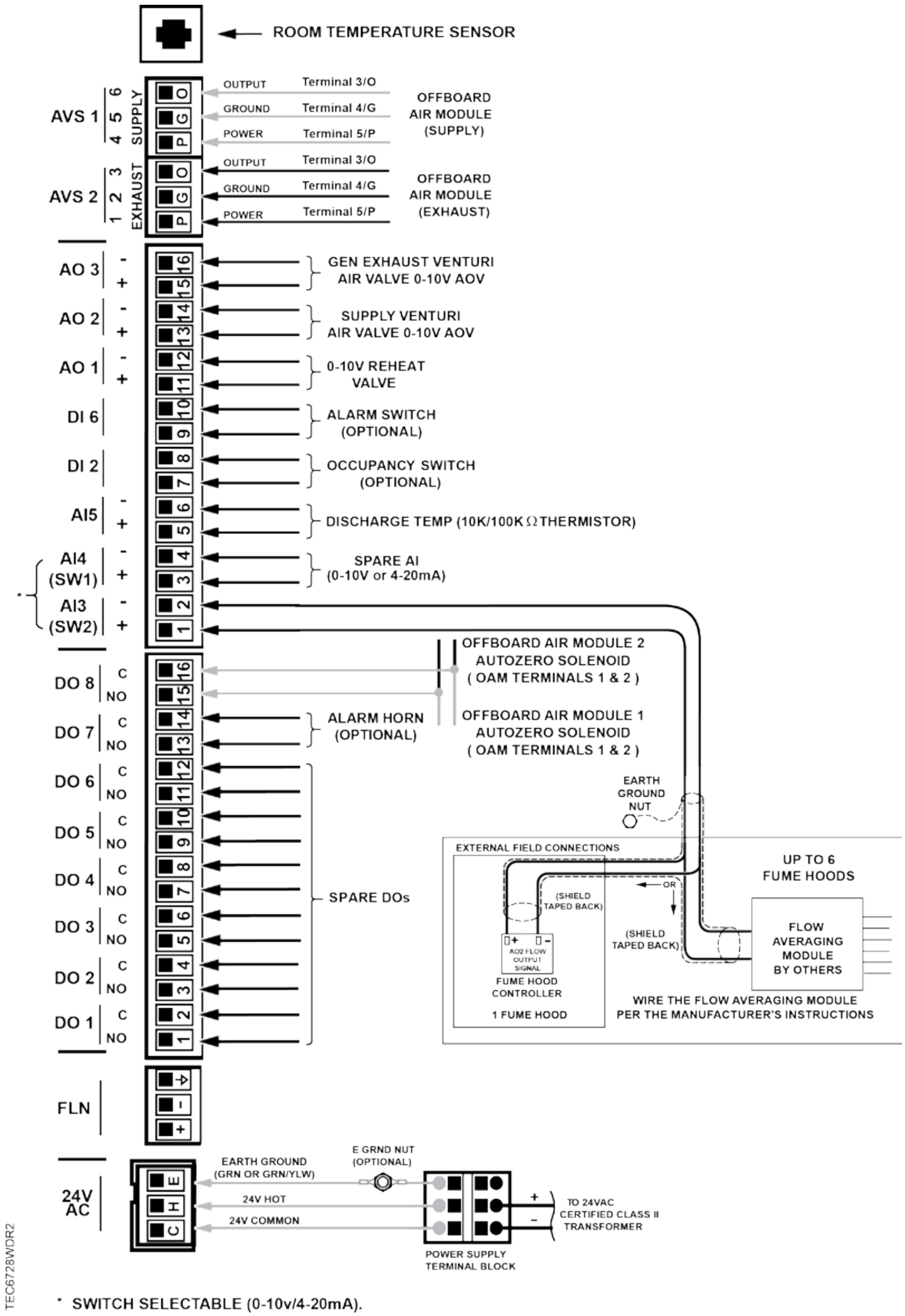
ATTENTION

Une alimentation séparée est nécessaire, si un capteur 4…20 mA est utilisé.

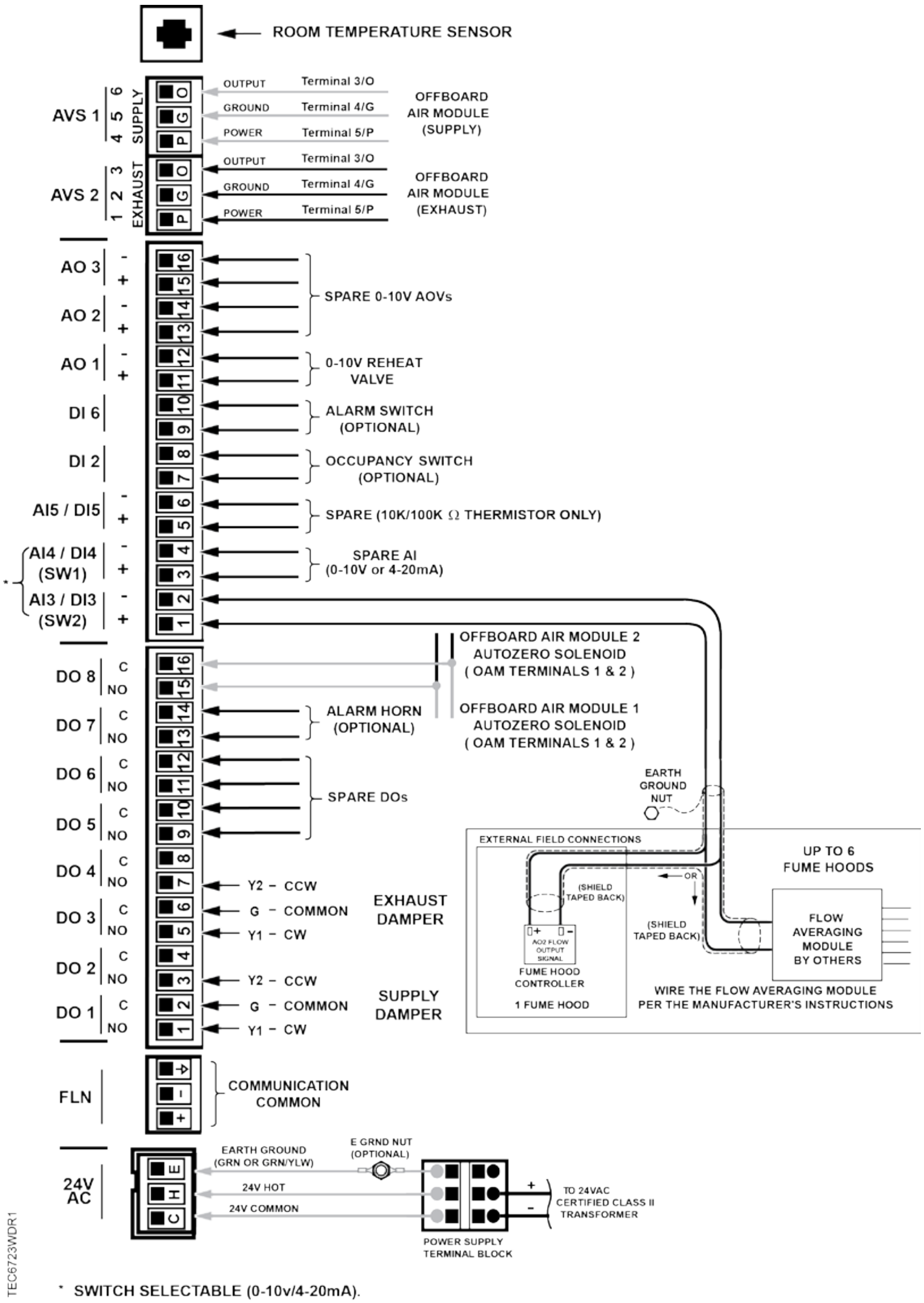
Risque de dégâts matériels, si les précautions de câblage ne sont pas respectées.



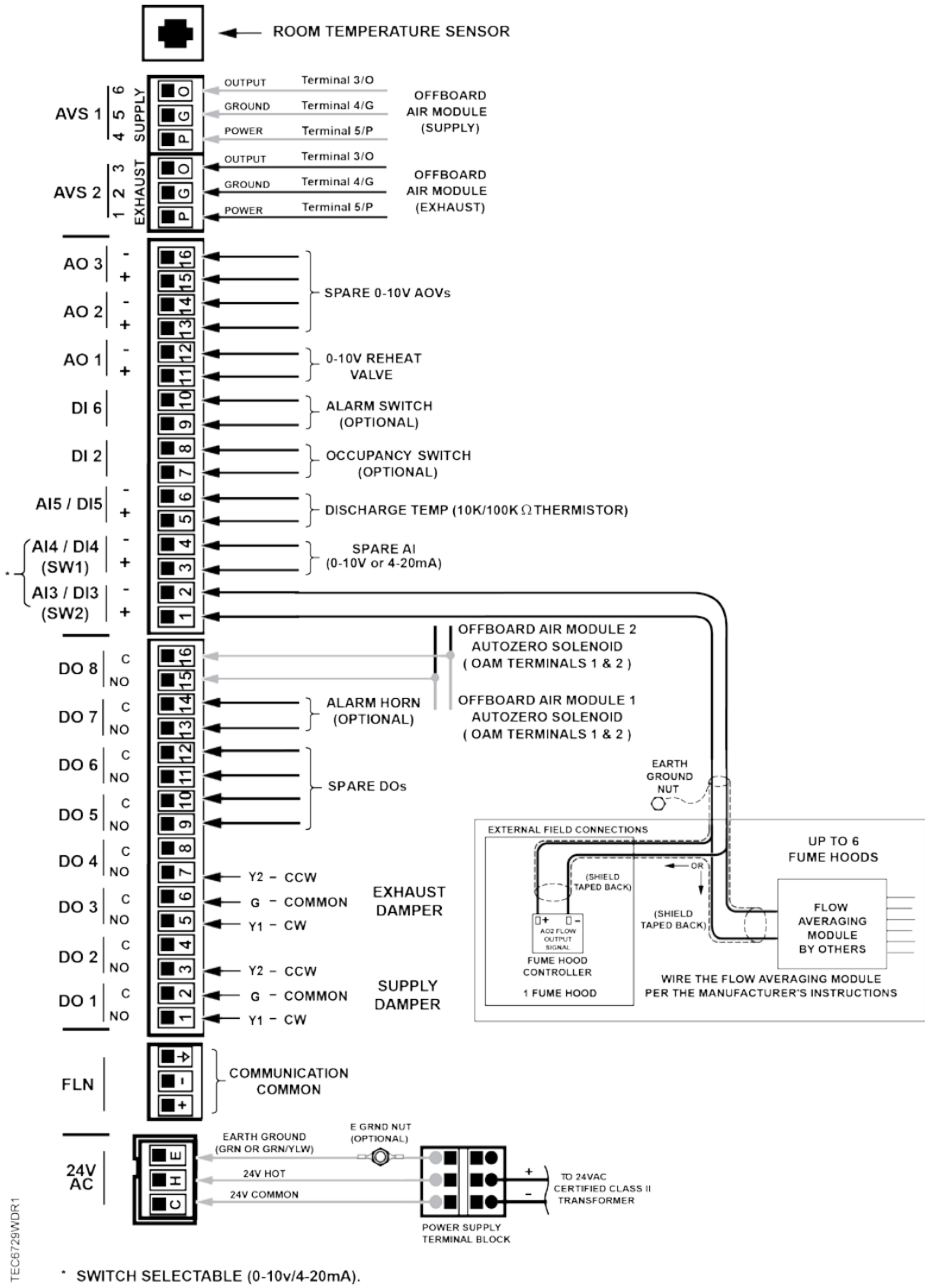
BACnet LCM-OAVS Slow Actuation Venturi Supply/Venturi Exhaust – Application 6722 Wiring Diagram.



BACnet LCM-OAVS Slow Actuation Venturi Supply/Venturi Exhaust with BTU Compensation – Application 6728 Wiring Diagram.



BACnet LCM-OAVS Slow Actuation Damper Supply/Damper Exhaust – Application 6723 Wiring Diagram.



BACnet LCM-OAVS Slow Actuation Damper Supply/Damper Exhaust with BTU Compensation – Application 6729 Wiring Diagram.

Siemens Industry, Inc.
Building Technologies Division
1000 Deerfield Parkway
Buffalo Grove, IL 60089-4513
USA
Tel. 1 + 847-215-1000

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