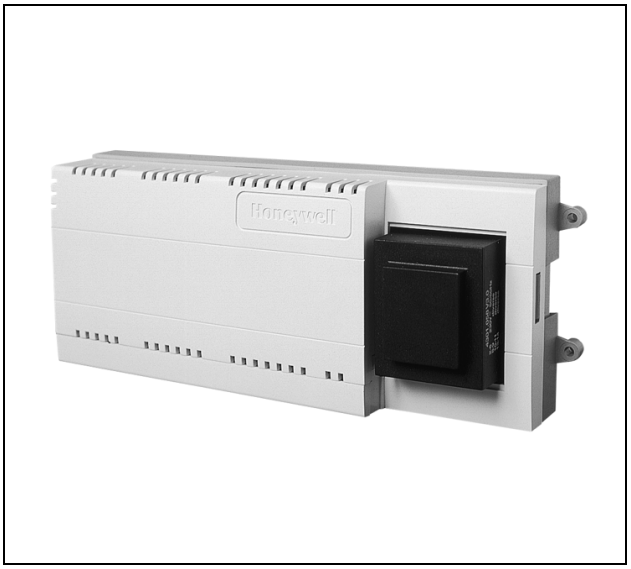
Excel 10

W7752D,E,F,G FAN COIL UNIT CONTROLLERS

SPECIFICATION DATA



GENERAL

The W7752D,E,F,G are LONMARK compliant, mains-powered FCU controllers belonging to the Excel 10 product line. They cover a wide range of fan coil control applications and can operate as stand-alone units or networked using the standard Echelon LONWORKS® bus. Interfaces are provided for a wide range of actuator types. Heating systems can be water or electric, and cooling systems can be chilled water supply or compressors. Extensive timing and interlock features make the W7752 especially suitable for systems using electric heat and compressors.

Table 1. FCU Controller models

OS number	power input	reheat relay
W7752D2007	230 Vac	X
W7752E2004	230 Vac	--
W7752F2002	115 Vac	X
W7752G2000	115 Vac	--

FEATURES

- **LONMARK® HVAC profile #8020.**
- **Stand-alone operation or on high speed 78 kilobit Echelon® LONWORKS© network.**
- **Uses Echelon LonTalk® protocol.**
- **FTT10A Transceiver.**
- **Direct connection of thermal actuators.**
- **Direct connection to fan switch.**
- **Direct connection to electric heat.**
- **Factory-configured default parameters.**
- **Wide range of supported valves and actuators.**
- **Interlocks and time delays to protect equipment.**
- **Slim design fits into narrow fan coil units.**
- **Terminations all on one side, allowing controller to be positioned at back of fan coil unit.**
- **Power supplied by power mains.**

DESCRIPTION

The W7752D,E,F,G provide room temperature control for two and four pipe fan coil units with optional electric heating coils (W7752D,F) and can control 1-, 2-, or 3-speed fans. They have factory default configuration settings and are fully operable on installation. Using standard Echelon configuration tools, they can be configured with job-specific settings. A variety of optional wall modules interface with the FCU Controllers and provide any or all of the following: setpoint adjustment, fan speed adjustment, and an occupancy bypass button. All wall modules include a space temperature sensor; however, a remote C7068A return air sensor can also be used.

Table 2. Supported output types

output	options
heating	floating, thermal, PWM, ON/OFF, staged electric
cooling	floating, thermal, PWM, ON/OFF, staged compressor
fan	ON/OFF, 2-speed, 3-speed
electric reheat	ON/OFF

Sequences

Heat and cool sequences can be selected to be active or not active, giving a total of eight different sequence options (each can be with or without fan control):

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- Heat only
- Cool only
- Heat/cool changeover
- Heat and cool sequence
- All of the above with electric reheat.

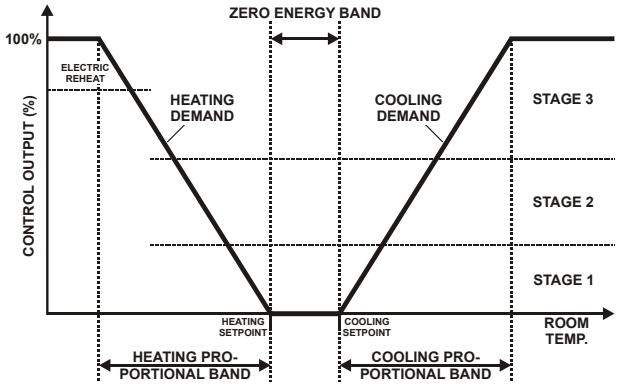

Fig. 1. Operational sequence

Modes of Operation

The controller has the following modes of operation.

Occupied Mode

This is the normal operating condition for a room or zone when occupied. The controller can be switched into this mode by a network command, by the room occupancy sensor, or by a bypass button on the wall module. In the occupied mode, the fan is controlled by the wall module's fan speed switch setting or, when the switch is set to "auto," by the control algorithm. The fan can be configured to remain ON or to turn OFF in the zero energy band.

Standby Mode

The standby mode saves energy by reducing heating or cooling demand when the room is temporarily unoccupied. The fan is then switched OFF during the zero energy band.

Unoccupied Mode

This mode is used for longer unoccupied periods, such as at night or during weekends and holidays.

Window Open

If the controller is configured for window open detection, it automatically disables heat and cool control until the window is closed again. Frost protection remains active.

Frost Protection

If the temperature drops below 46°F (8°C), the controller enables the heating circuit as frost protection.

Smoke Control

For smoke control, the fan can be turned ON or OFF by network command.

Fan Fail

When configured with an air flow detector, the controller protects equipment by disabling the system when the fan fails.

Changeover

The controller operates two-pipe FCUs configured with a changeover input.

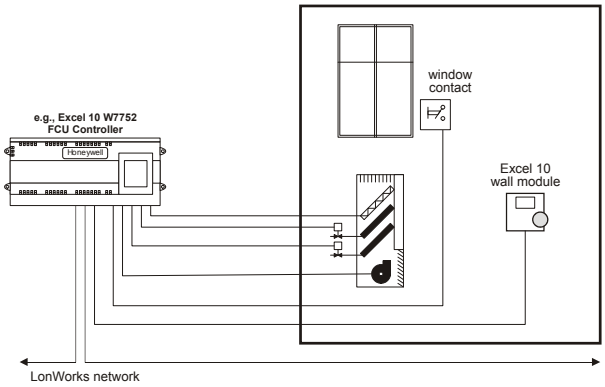

Fig. 2. Typical application

SPECIFICATIONS

Models

The W7752D and W7752E are 230 Vac versions and are identical except that the W7752D has an additional relay for switching electric heat coils. The W7752F and W7752G are 115 Vac versions of the W7752D and W7752E, respectively.

Inputs/Outputs

Table 3. Input/output specifications

inputs	function	characteristics
digital	window / occup. / changeover / air flow	closed ≤400 Ω (1.5 mA), open ≥ 10 kΩ (4.8 V)
analog/ digital[1]	run speed/override	resistor network
analog	temperature sensor	20k ohm NTC
analog[1]	setpoint adjustment	10k ohm
outputs		
digital[1]	override LED	0/5 Vdc
triac (2 pairs)[2]	heat and cool	24 Vac, 250 mA max. continuous, 650 mA max. surge (≤ 30 sec)
relay (3)	fan switching	20 to 253 Vac, 3 A max.
high-power relay[3]	electric heat (resistive load)	20 to 300 Vac, 10 A max. 6 A max. (UL916)

[1] Wall module connection, only.

[2] See Table 2 for output type options.

[3] W7752D,F only.

Power Supply

W7752D and W7752E: 230 Vac + 10%, -15%, 50/60 Hz

W7752F and W7752G: 115 Vac + 10%, -15%, 50/60 Hz

Power Consumption and Heat Dissipation

Power consumption: 30 VA max.

Heat dissipation: 30 W max.

Hardware design

- Processor: Neuron 3150® running at 5 MHz, with 2 Kbyte of RAM and 0.5 Kbyte of EEPROM on chip
- External memory: EPROM, 64 Kbyte by 8
- Transformer (mounted on PCB): 16 VA with thermal fuse

Specified Sensing Temperature Range

32° to 104°F (0° to 40°C)

Environmental Ratings

Operating temperature: 32° to 122°F (0° to 50°C)

Shipping/storage temperature: -40° to 158°F (-40° to 70°C)

Relative humidity: 5% to 95% non-condensing

Dimensions

4-1/8 x 10-1/8 x 2-1/2 in. (101 x 257 x 60 mm)

Communications

The controllers use the LonTalk protocol. They support the LONMARK Functional Profile # 8020 “Fan Coil Unit Controller”, version 2.0 (see Fig. 3).

The recommended wire size to be used for the LONWORKS Bus is level IV 22 AWG (Belden part no. 9D220150) or plenum rated level IV 22 AWG (Belden part no. 9H2201504) non-shielded, twisted pair, solid conductor wire.

FTT networks can be in bus, star, loop or any combination of these topologies.

Mounting Options

W7752 Controllers can be snapped onto standard EN 50 022 DIN rail, 1-3/8 by 9/32 in. (35 mm by 7.5 mm), or they can be mounted directly on a panel with four screws. They must be mounted inside the fan coil unit box for safety reasons due to the presence of 100/115/230 Vac at the terminal block.

Approvals and Standards

- CE
- UL916
- EN50081-1
- EN50082-1
- meets FCC part 15 class B requirements

Accessories

- Excel 10 T7460 Wall Modules
- Excel 10 T7560 Wall Modules
- Excel 10 T7770 Wall Modules
- XAL-Term2 Termination Module
- C7068A Return Air Sensor (Europe only)
- M7410C Small Electric Linear Valve Actuator (Europe, only)
- Z100 Thermoelectric Actuator (Europe, only)

Functional Profile

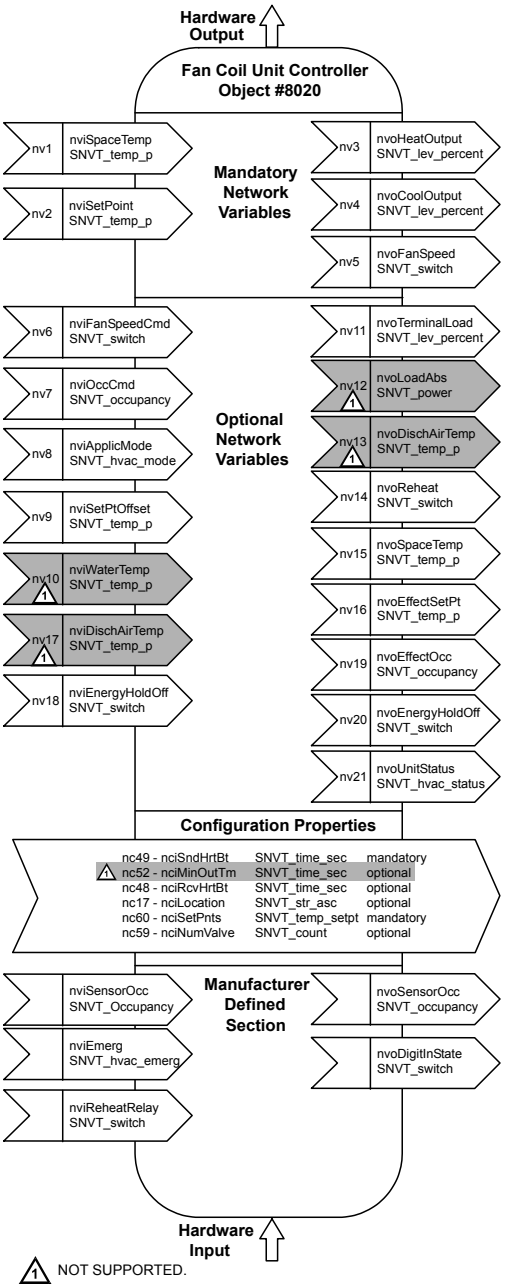

Fig. 3. LONMARK object details

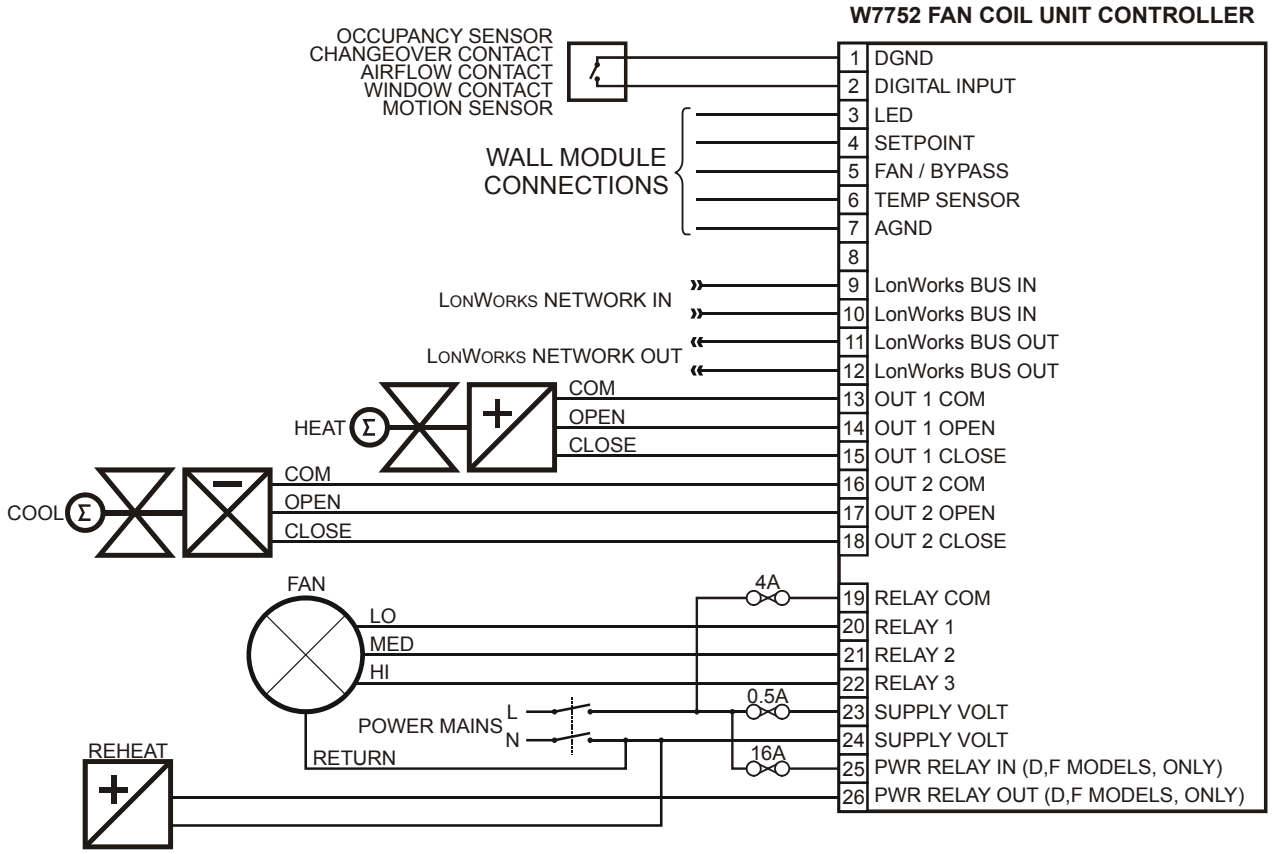

Fig. 4. Input/output details

Table 4. Output assignments for various actuator types

output type	Out 1 terminal			Out 2 terminal		
	13	14	15	16	17	18
floating	24 Vac	open	close	24 Vac	open	close
1-stage	24 Vac	ON/OFF	—	24 Vac	ON/OFF	—
2-stage	24 Vac	stage 1	stage 2	24 Vac	stage 1	stage 2
3-stage	24 Vac	stage 1	stage 2	24 Vac	stage 1	stage 2
		stage 3			stage 3	
PWM	24 Vac	PWM	—	24 Vac	PWM	—
thermal	24 Vac	ON/OFF	—	24 Vac	ON/OFF	—

Honeywell

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