

HONEYWELL TECHNICAL TRAINING PROGRAM

Core  
Technical Training

Part 1 - HVAC

*Workbook*

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## LAB 100 – HVAC and EMS System Components

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*Completion Time 10 min*

### Lab Overview

The purpose of this Lab is to check your understanding on the overview of the INNCOM thermostats and EMS components. You should be able to identify the differences between the INNCOM families of HVAC and EMS components, understand their applications and locate relevant product documentation.

### Learning Objectives

Using the provided INNCOM product documentation:

- 100.1 Describe the E528.4G thermostat
- 100.2 Describe the E7 thermostat
- 100.3 Describe the E527.4G thermostat
- 100.4 Describe the E529.4G thermostat
- 100.5 Describe the MODEVA™ thermostat
- 100.6 Describe the X47 controller
- 100.7 Describe the X05R controller
- 100.8 Describe the X05B controller card
- 100.9 Describe the X06 relay pack
- 100.10 Describe the X06.DIN controller
- 100.11 Describe EMS system components

### Reference

HTTP 220 Student Study Guide  
Product Order and User Guides (Provided on Student USB)

## LAB 100 – Review Questions

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1. Which statement best describes the E528 Thermostat?
  - a. The E528 Thermostat can be powered by 24vac.
  - b. The E528 Thermostat can communicate using a ZigBee RF radio.
  - c. The E528 Thermostat can control a two pipe fan coil.
  - d. All of the above
  
2. Which statement below is FALSE?
  - a. The E7 is used for HVAC controls.
  - b. The E7 can do energy management.
  - c. The E7 is battery powered.
  - d. The E7 is the brain of the In Room Automation System (IRAS).
  
3. What component is used to send an RF wireless door switch signal to a thermostat? \_\_\_\_\_
  
4. Select the statement describing this E528 part number 01-9911-A3-L7-I0-R2-1H-WH.
  - a. 24vac, 3G, Flat PIR only, no humidity, no logo, eagle almond
  - b. 24vac, 4G, Eco Mode, white, humidity, Honeywell logo, white
  - c. 24vac, 4G, Flat PIR and Eco Mode , white, no humidity, no logo, black
  - d. 24vac, 4G, Standard PIR and Eco Mode, Humidity, Honeywell Logo, white
  
5. Which statement best describes the E527 Thermostat?
  - a. The E527 Thermostat is designed for British single gang electrical boxes.
  - b. The E527 Thermostat does not have an RF radio.
  - c. The E527 Thermostat is powered by battery.
  - d. The E527 Thermostat is only available in white.
  
6. Which statement best describes the E529 Thermostat?
  - a. The E529 Thermostat can be powered by 24vac.
  - b. The E529 Thermostat can be powered by 120vac.
  - c. The E529 Thermostat can be powered by 277vac.
  - d. None of the above.
  
7. The MODEVA™ thermostat contains onboard relays to directly control an HVAC unit.
  - a. True
  - b. False
  
8. The X05R requires a separate power supply.
  - a. True
  - b. False

9. The X05B can communicate to the thermostat via:
- a. Wired S5Bus
  - b. TCP/IP
  - c. RS485
  - d. Ethernet
10. The X47 is typically mounted in the HVAC enclosure and communicates to the MODEVA™ thermostat via S5Bus.
- a. True
  - b. False
11. The X47 requires a separate power supply.
- a. True
  - b. False
12. The MODEVA™ Thermostat has an optional onboard motion sensor.
- a. True
  - b. False

STOP – Lab will be reviewed at the conclusion of the Lab time.

Take a break if time permits.

## LAB 110 – HVAC and EMS Architecture

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*Completion Time 10 min*

### Lab Overview

This lab will check your understanding on the most common architecture of HVAC and EMS components in an INNCOM IRAS system. In addition, it will check your understanding on the basic functionality of common individual room control HVAC units such as the PTACs, PTHPs and Fan Coil Units.

### Learning Objectives

Using the provided INNCOM product documentation and study guide:

- 110.1 Describe proper thermostat installation
- 110.2 Describe PTAC Systems
- 110.3 Describe PTHP Systems
- 110.4 Describe 4 Pipe Fan Coil Systems
- 110.5 Describe 2 Pipe Fan Coil Systems
- 110.6 Describe typical EMS architecture
- 110.7 Describe common HVAC device wiring

## Lab 110 - Review Questions

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1. Which controller is used with E527.4G thermostats to integrate to equipment?
  - a. X47
  - b. E529
  - c. X67
  - d. MODEVA
  
2. What additional sensor is typically used when controlling a 2 pipe FCU that changes from heating to cooling seasonally? \_\_\_\_\_
  
3. Which INNCOM thermostat is always wireless to the HVAC equipment?
  - a. E527.4G
  - b. E528.4G
  - c. E529.4G
  - d. MODEVA
  
4. 4 pipe fan coil system have heat and cool available at the same time?
  - a. True
  - b. False
  
5. The Fan relays and "Valve" (heat and cool) relays on the E528.4G are powered independently.
  - a. True
  - b. False
  
6. PTHP stands for:  
\_\_\_\_\_
  
7. PTHP systems require the same control signal logic as a 4 Pipe Fan Coil Unit.
  - a. True
  - b. False
  
8. How many remote temperature probes are required when controlling a 2-pipe FCU system with seasonal change-over using a MODEVA™ thermostat without a network? \_\_\_\_\_
  
9. What component is used as a transceiver for wireless RF signals to and from INNCOM devices?
  - a. X47

- b. RTC 5
  - c. PC 502
  - d. PC505
10. The X05B/X06 combination is mounted on a DIN rail and requires an additional 12 vdc DIN rail mounted power supply.
- a. True
  - b. False
11. You need to control 4 pipe fan coil unit with 3 fan speeds and floating valves. Each valve requires two digital signals – one to open and one to close the valve. Which of the following devices is the most appropriate for controlling this system?
- a. E528.4G directly controlling the FCU
  - b. E528.4G wired S5Bus to an X06.DIN, X06.DIN provides control signals to FCU
  - c. E528.4G wired S5Bus to an X05.R, X05R provides control signals to FCU
  - d. E528.4G wired S5Bus to an X47, X47 provides control signals to FCU

STOP – Lab will be reviewed at the conclusion of the Lab time.

Take a break if time permits



## LAB 120 – EMS Logic

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*Completion Time 10 minutes*

### Lab Overview

The purpose of this lab is to check your understanding on the INNCOM EMS logic. You should be able to describe the modes of operation of our EMS in various system configurations. These configurations include Networked EMS with entry door switch and motion sensor, standalone EMS with door switch and motion detector and motion only EMS systems.

### Learning Objectives

Using the HTTP 220 Study Guide:

- 120.1 Describe INNCOM EMS Modes
- 120.2 Describe Networked EMS – Door switch and motion sensor
- 120.3 Describe Standalone EMS – Door switch and motion sensor
- 120.4 Describe Standalone EMS - Motion sensor only
- 120.5 Describe Additional EMS Modes

## LAB 120 - Review Questions

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1. Unrented/Occupied mode is only available in a Networked EMS system.
  - a. True
  - b. False
  
2. Which statement best describes the occupancy logic in a standalone system with an entry door switch and a motion sensor?
  - a. 10 minutes after the door switch is activated and no motion is detected the room will be declared Occupied.
  - b. 10 minutes after the door switch is activated and no motion is detected the room will be declared Unoccupied.
  - c. The default temperature delta in shelf software is +/- 6 degree F around set point.
  - d. The INNCOM server tells the thermostat when the room is occupied.
  
3. How does a room become Unrented/Unoccupied in a standalone system with an Entry Door Switch and Motion Sensor?  

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4. How long does it take for a Bright room to reach Rented/Unoccupied mode in a standalone system equipped with a motion sensor and light sensor? \_\_\_\_\_
  
5. In a standalone system, how can the Staff person prevent a room from staying rented/occupied for the full motion timeout duration after servicing the room?
  - a. The staff person must check the room out at the front desk.
  - b. This staff person must hold the door open for 10 minutes.
  - c. The staff is required to manually set the room Unrented after they are finished.
  - d. The staff person cannot prevent the room from staying Rented Occupied.
  
6. The thermostat can apply the OFF/Danger bands while the Balcony/Window is open.
  - a. True
  - b. False

7. ecoMode™ band applies when ecoMode™ is turned ON and the room is Unoccupied.
  - a. True
  - b. False
  
8. What is the staff clipping range in degrees F? \_\_\_\_\_
  
9. What mode is used to disable EMS and provides the guest with a wider selectable range?  
\_\_\_\_\_
  
10. ETM Mode increases energy savings while the room is unrented/unoccupied by expanding the unrented/unoccupied bands.
  - a. True
  - b. False

STOP – Lab will be reviewed at the conclusion of the Lab time.

Take a break if time permits.

## LAB 130- Software Loading Tools

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*Completion Time 30 min*

### Lab Overview

The purpose of this lab is to check your understanding and provide practice of various INNCOM software loading tools. You will use the ES-1 key to copy software from your E528.4G, use the ST-Link tool to load cool-only software to the E528.4G then use the ES-1 key to reload your E528.4G with shelf software. You will also be asked to answer questions on the other INNCOM software loading tools.

### Learning Objectives

- 130.1 Use the ES-1 Key
- 130.2 Use the ST-Link STM32 Programming Tool
- 130.3 Describe the ST7 ICP Tool
- 130.4 Describe the CC Debugger Radio Software Tool

## Lab 130 Review Questions

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1. How many ES 1 keys are required to load software into an E528,4G thermostat
  - a. 1
  - b. 2
  - c. 3
  - d. 4
  
2. The ES1 Key is used to load software into the new E7 thermostat
  - a. True
  - b. False
  
3. The ST-Link can be used to load software from the laptop directly to a powered INNCOM device
  - a. True
  - b. False
  
4. Which of the following devices is NOT programmed using the ST7 tool?
  - a. X05B
  - b. X07 HVAC Controller
  - c. E528.4G
  - d. D254.DIN
  - e. None of the above
  
5. The ST7 tool connects directly to the computer USB port?
  - a. True
  - b. False
  
6. How many COM ports does the Flashbash application allow you to select for the ST7 tool? \_\_\_\_\_
  
7. When using an ST7 tool to load a target device via Keyfob mode, the target device does not need to be powered.
  - a. True
  - b. False
  
8. Name 2 devices that use the CCDebugger programming tool
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_

**STOP** – Lab will be reviewed at the conclusion of the Lab time.

HONEYWELL TECHNICAL TRAINING PROGRAM

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Part 2- Networks

## LAB 200 – Wireless Network Architecture

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*Completion Time 10 min*

### Lab Overview

This lab focuses on the architecture of the INNCOM Deep Mesh wireless RF network including how to identify hardware requirements, system specifications and overall network structure.

### Learning Objectives

- 200.1 Describe the INNCOM Deep Mesh network architecture
- 200.2 Identify the in-room hardware required for a Deep Mesh network
- 200.3 Describe B574/8 Edge Router and port requirements for a Deep Mesh network

### Reference

HTTP 220 Student Study Guide

## LAB 200 – Review Questions

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1. The E527.4G, E528.4G and E529.4G thermostats are all able to communicate to a Deep Mesh B574/8 Edge Router without the need for additional hardware at the thermostat.
  - a. True
  - b. False
2. The B574/8 Edge Router has an RF Range of about \_\_\_\_\_ feet.
3. Edge Routers can be organized into both horizontal and vertical PANs.
  - a. True
  - b. Fals
4. The recommended maximum number of thermostats per edge router is between \_\_\_\_\_ and \_\_\_\_\_ thermostats.
5. Which variables can influence the quality of RF communication on the Deep Mesh Network?
  - a. Building Construction
  - b. 3<sup>rd</sup> Party Interface Traffic (Electronic Door Locks, Mini-bar)
  - c. Heavy RF traffic in building
  - d. All of the above
6. The B574/8 Edge Routers communicate to the INNCOM server via:
  - a. Serial connection
  - b. RS485
  - c. Ethernet
  - d. RS232
  - e.
7. Which UDP port do the B574/8 Edge Routers use for communication to the INNCOM server?  
\_\_\_\_\_
8. B574/8 Edge Routers require a static IP address.
  - a. True
  - b. False
9. Edge routers come ready for POE by default.
  - a. True
  - b. False
10. Which in-room device is required for the MODEVA™ to communicate on an RF network?  
\_\_\_\_\_



## LAB 210 – Alternate Network Solutions

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*Completion Time 25 min*

### Lab Overview

The purpose of this lab is to test your understanding on the architecture of INNCOM wired network backbones including RS485 and Ethernet.

### Learning Objectives

- 210.1 Describe the INNCOM RS485 network architecture
- 210.2 Describe room level requirements for RS485 network
- 210.3 Describe specifications for B576 network bridge
- 210.4 Describe the Ethernet network architecture
- 210.5 Describe room level requirements for Ethernet network
- 210.6 Describe specifications for B578R network bridge

## LAB 210 – Review Questions

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1. It is acceptable to construct the INNCOM RS485 network backbone in the following way:
  - a. Daisy-chain cable between rooms
  - b. Home run the pair from each thermostat to a termination block
  - c. Both A and B
  - d. None of the above
  
2. Which of the following thermostats require additional components attached to them in the room for RS485 network communication?
  - a. MODEVA™
  - b. E527.4G
  - c. E528.4G
  - d. Both A and C
  
3. The RS485 cables terminate directly to an input on the INNCOM server
  - a. True
  - b. False
  
4. How many total rooms/gateways can one B576 support? \_\_\_\_\_
  
5. What is the maximum number of rooms that can communicate on one communication port of the B576?  
\_\_\_\_\_
  
6. What device is required for RS485 communication to the E529.4G/X47? \_\_\_\_\_
  
7. What additional cables and parts are required for RS485 communication to an E528.4G?
  - a. 203-250
  - b. 62-1532-B.12
  - c. Both A and B
  - d. None of the above
  
8. The 2 pin cable connected to the INNCOM RS485 devices has a red and green wire. Draw a line connecting the cable color to the appropriate RS485 signal.

Red conductor

RS485 B

Green conductor

RS485 A

9. How does the B576 communicate to the INNCOM server?

- a. RS485
  - b. Serial Connection
  - c. Ethernet/UDP broadcast
  - d. None of the above
10. The B576 needs to be grounded to same earth ground as the thermostat or X47.
- a. True
  - b. False
11. Which header is the RS485 dongle connected to on the back of the E528 thermostats? \_\_\_\_\_
12. The B578R hardware is installed at the room level.
- a. True
  - b. False
13. The B578R communicates to room devices is via: \_\_\_\_\_
14. INNCOM's Ethernet backbone is designed to communicate on an existing/shared Ethernet backbone.
- a. True
  - b. False
15. Which thermostat requires an additional hardware component to be able to communicate with the B578R?
- a. E528
  - b. E527
  - c. MODEVA
  - d. None of the above
16. Which UDP port do the PC803 devices use for communication? \_\_\_\_\_
17. Does the B578R require a Static IP address?
- a. Yes
  - b. No
18. B578R's with the same PAN ID and RF Channel must NOT cross.
- a. True
  - b. False

## LAB 220 – INNcontrol™ 3 Users and Workstations

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*Completion Time 20 min*

### Lab Overview

This lab checks your understanding on the components of INNcontrol 3 user accounts including account types, syntax of creating users, and the script files used to create/modify user accounts. Workstation installation is also covered.

### Learning Objectives

- 220.1 Describe the purpose of user accounts and the user account script file
  - 220.2 Describe how to enable/disable features
  - 220.3 Create a workstation install folder
  - 220.4 Install a workstation
  - 220.5 Test and troubleshoot a workstation
-

## LAB 220 – Review Questions

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1. User accounts dictate what each user can:

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

2. What file is used to add users to INNcontrol™ 3?

\_\_\_\_\_

3. Users are added to a script file that exists ONLY on the INNCOM server.

a. True

b. False

4. What file is used to enable/disable features in INNcontrol™ 3?

\_\_\_\_\_

5. The script file that manages features of INNcontrol™ 3 is located ONLY on the INNCOM server.

a. True

b. False

6. You would like to activate the dehumidification feature. Which is the correct line to activate dehumidification?

a. ; De-humidification  
feature=42,0,1,5,5

b. ; De-humidification  
feature=42,1,1,5,5

c. Both A and B

d. None of the above

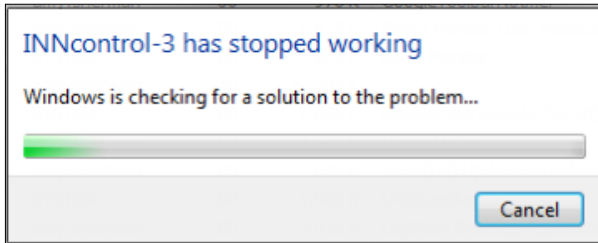
7. Your customer would like to add a user with username JDoe with same access rights as default user engineer,e,5. Write the line you will need to add to the DCAccess.cfg script file to add this user.

8. User JDoe has forgotten his password. What is the best way to clear/reset this user's password?
- Uninstall *INNcontrol™ 3*
  - Add a new user named JDoe2 in the DCAccess.cfg file
  - Delete the JDoe.USR file from the C:\INNCOM\Scripts folder on the INNCOM server
  - Delete the JDoe user from the DCAccess.cfg script, save the file, then add the user back into the file
  - None of the above
9. A workstation is a COPY of the property specific INNcontrol 3 running on the server.
- True
  - False
10. Which 2 applications are required to run on a workstation?
- \_\_\_\_\_
  - \_\_\_\_\_
11. You may edit WCon.cfg using notepad.
- True
  - False
12. The WCon.cfg file must be customized to contain which of the following:
- Server IP Address
  - Room addressing scheme
  - Workstation IP Address
  - None of the above

13. Which TCP port does WCon.exe use to connect to the INNCOM server?

\_\_\_\_\_

14. What does the following error indicate when you try to open INNcontrol 3?



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

STOP – Lab will be reviewed at the conclusion of the Lab time.

Take a break if time permits.

## LAB 230 – 3<sup>rd</sup> Party Interfaces

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*Completion Time 15 min*

### Lab Overview

This lab checks your understanding on the configuration of typical Property Management System (PMS) interfaces to the INNCOM server including the type of information required from the PMS Vendor, serial pinout information, TCP/IP settings and INNCOM script files used for configuration. CELS, Bartech and Workorder interfaces are also included.

### Learning Objectives

- 230.1 Describe serial and TCP/IP PMS interfaces
- 230.2 Describe CELS interfaces
- 230.3 Describe Bartech interface
- 230.4 Describe HotSOS workorder system interface



## LAB 230 – Review Questions

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1. List 3 key benefits of having a PMS Interface:

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

2. List the 3 Protocols INNCOM uses for serial PMS interfaces:

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

3. INNCOM can interface with PMS vendors via serial and TCP/IP.

- a. True
- b. False

4. Which application is responsible for communicating with a serial PMS interface?

\_\_\_\_\_

5. Write the pinout on the INNCOM end of a DB9 connector?

Use the following abbreviations (Receive= **Rx**, Transmit=**Tx**, Ground=Gnd)

- a. Pin 2 = \_\_\_\_\_
- b. Pin 3 = \_\_\_\_\_
- c. Pin 5 = \_\_\_\_\_

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6. You need to connect to a Micros Opera serial interface to your INNCOM server. You have connected your serial cable to COM 1 on the INNCOM server. The PMS vendor connection is configured as: 9600 baud, 8 data bits, no parity, 1 stop bit. Which of the following is the correct configuration line in the Netcom.cfg file to connect this interface?

- a. ComPortDriver=COM1,"PMPMS90", 0,1,9600,8,n,1,5,0
- b. ComPortDriver=COM2,"BATPMS90", 0,1,9600,8,n,1,8,0
- c. ComPortDriver=COM1,"SCI\_ATL", 0,1,9600,8,n,1,9,0
- d. ComPortDriver=COM1,"BATPMS90", 0,1,9600,8,n,1,8,0

7. Which application is used to view/verify the serial PMS interface activity?

\_\_\_\_\_

8. Translate the following message from the PMS interface:

\$ PMS\_SCIAT\_RX E03069 translates to:

\_\_\_\_\_  
\_\_\_\_\_

9. Netcom is used to connect to the Micros FISA (Fidelio) PMS TCP/IP interface.

- a. True
- b. False

10. The Bartech server interfaces with the INNCOM server to retrieve information from their mini-bars.

- a. True
- b. False

11. What are two CELS vendors that can interface with INNCOM.

- a. \_\_\_\_\_
- b. \_\_\_\_\_

12. What is the main purpose of a work order interface with the INNCOM system?

\_\_\_\_\_  
\_\_\_\_\_

13. Any INNCOM device can be a CELS proxy to all CELS vendors.

- a. True
- b. False

14. Other than eliminating the magnetic door switch for INNCOM EMS, name two other ways a hotel can benefit from a CELS interface.

a. \_\_\_\_\_

b. \_\_\_\_\_

STOP – Lab will be reviewed at the conclusion of the Lab time.  
Take a break if time permits.

HONEYWELL TECHNICAL TRAINING PROGRAM

Core  
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Part 3- Lighting

## LAB 300 – Lighting and Guest Amenities

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*Completion Time 20 min*

### Lab Overview

The purpose of this lab is to check your understanding on INNCOM's lighting and guest amenities devices.

### Learning Objectives

- |       |                                       |
|-------|---------------------------------------|
| 300.1 | Describe INNCOM light control devices |
| 300.2 | Describe INNCOM switch devices        |
| 300.3 | Describe INNCOM Lamp Control devices  |
| 300.4 | Describe INNtouch                     |

## LAB 300 – Review Questions

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1. Which of the following devices are NOT DIN rail mountable?

- a. X05R
- b. D254.DIN
- c. X05B/X06 Relay Pack
- d. X06.DIN

2. What is a main differentiator of a MODEVA™ switch?

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3. Which controller is used for light dimming?

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4. What is the maximum number of keys allowed on an EVORA™ switch?

- a. One
- b. Two
- c. Four
- d. Five

5. Which of the following benefits does INNCOM lighting controls provide our customers?

- a. Energy savings
- b. Unique customized design
- c. Delighted guests
- d. All the above

6. Which of the switch series can be incorporated into the millwork/woodwork design?

- a. MODEVA™
- b. EVORA™
- c. Designer Series
- d. S- Series

7. The INNtouch system is used for what purpose?

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8. What benefits would be realized with integrating the INNtouch system with a networked EMS system?

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9. If housekeeping depresses the “Hidden Button” and a green light flashes, what does this indicate?
- Room is unoccupied
  - Room is occupied
  - Do not disturb
  - Guest is requesting service
10. If the INNtouch kit is not wired an S5Bus with a 12 vdc power supply, an external power supply may be used to power the devices.
- True
  - False
11. Which of the following INNCOM by Honeywell light control device is a 2 channel dimmer?
- X05B/X06
  - X05R
  - D254.DIN
  - P564
12. Select the phrase that best completes this statement: The X05R is powered by\_\_\_\_\_.
- a 12vdc power supply such as (PS564.DIN).
  - line voltage connected to the X05R.
13. Which of the following best describes the EVORA™ series switches?
- Optional direct control of light circuit
  - Backlit keys
  - Nightlight option available
  - All of the above
14. The US Gang MODEVA™ switch series can be ordered as low voltage switches or they can also directly control a light circuit with the a WBI interface.
- True
  - False
15. Which device is required to make the X05B/X06 device RF capable? \_\_\_\_\_
16. Which of the following auxiliary switches can be used with the L208 lamp controller?
- SL208.1
  - SL210
  - S541
  - Both a and b
17. The L506.RF lamp control device is rated for a \_\_\_\_\_ incandescent load.

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18. The DS12 Designer Series switches connect to which device? \_\_\_\_\_
19. The D254.DIN is available in a leading edge TRIAC version and a trailing edge MOSFET version. Which version is most appropriate to control a dimmable CFL? \_\_\_\_\_
20. The MODEVA P564 does NOT have a built in chime.
- a. True
  - b. False

STOP – Lab will be reviewed at the conclusion of the Lab time.

Take a break if time permits.



## LAB 310 – Light Control Design Basics

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*Completion Time 25 min*

### Lab Overview

This lab focuses on the concepts of lighting design including welcome scene options, energy management, mood design and light function tables.

### Learning Objectives

- 310.1 Explain light control features and benefits
- 310.2 Describe Welcome Scene Options
- 310.3 Describe the types of light control available
- 310.4 Describe dimming light commands
- 310.5 Describe mood light commands
- 310.6 Identify lighting design consideration questions
- 310.7 Describe light scene functionality
- 310.8 Describe device addressing logic
- 310.9 Describe light map/light function table
- 310.10 Describe light programming language
- 310.11 Describe methods available for modifying lighting design after installation

## LAB 310 – Review Questions

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1. What are two main benefits by adding light control to an IRAS installation?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  
2. Which statement best describes a Welcome Always configuration?
  - a. Lights are always on when the room is occupied.
  - b. Lights scene is activated every time there is a new entry into a room that was Unoccupied.
  - c. Lights scene is activated when a guest first walks into the room after a check-in and does not repeat until a new guest checks in.
  - d. None of the above.
  
3. List 3 of the 4 basic light control types.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  
4. Which of the following dimming commands will dim the light load to a specified value?
  - a. Dim up
  - b. Dim down
  - c. Dim toggle
  - d. Dim set
  - e. None of the above
  
5. When Dim Toggle is used to a logical group or all lights, what device decides which direction the dim should go?  
\_\_\_\_\_
  
6. List the 3 Mood Light Commands
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

# Honeywell

7. What happens to all participating lights on a Mood Clear? \_\_\_\_\_

8. Which statement best describes the use of a light map/light function table?

- a. Helps to define the functionality of switches and light control devices.
- b. Used by engineering for software design.
- c. Serves as an organizational tool for light functionality.
- d. All of the above.

9. Given the piece of a light function table below, answer the following questions:

Model Room		S4 S552 BATH				
		1	2	3	4	5
Control Circuits	Control		BATH		VANITY	
Circuit A, Entry	S55x					
Circuit B, Bath	S55x		DIM/TOG			
Circuit C, Vanity	S55x				ON/OFF	
Circuit D, Window	Evora					
Circuit E, Desk Lamp	Moderna					
Drapes	DS12					
Privacy						
MUR						

a. What function does button 2 have on switch S4? \_\_\_\_\_

b. Does switch S4 set or clear any moods? \_\_\_\_\_

c. How many buttons are used on switch S4? \_\_\_\_\_

10. It is acceptable for two devices to have the same device address in the same room.

- a. True
- b. False

11. Given two D254.DIN dimmers in a room, what device addresss would be most appropriate based on the recommended addressing guidelines? \_\_\_\_\_

12. Write **CBL8** or **CBL32** next to the following list of devices to indicate the programming language used by each device.

- a. \_\_\_\_\_ X05R
- b. \_\_\_\_\_ X05B/X06
- c. \_\_\_\_\_ MODEVA
- d. \_\_\_\_\_ EVORA
- e. \_\_\_\_\_ S-Series Switches
- f. \_\_\_\_\_ D254.DIN

13. What are two methods for modifying light design?

- a. \_\_\_\_\_
- b. \_\_\_\_\_

14. What is the maximum number of scenes available?

- a. 10
- b. 8
- c. 12
- d. 16

15. Which scene conventionally used as the Welcome Scene? \_\_\_\_\_

**STOP** – Lab will be reviewed at the conclusion of the Lab time.

Take a break if time permits