

# APPLICATION NOTES



## **Application Note 3001: Third Party Scheduling Strategy**

**Last command wins!!** – The last command given to the CMCN from the central controller, BAC-HD150 interface, LMAP03U interface or local RC (remote controller) will be the command the CMCN recognizes. No previous commands will be recognized.

The BAS (Building Automation System) should only send commands to the BAC-HD150 or LMAP03U at scheduled intervals.

**NOTE 1:** The central controllers, the LMAP03U and the BAC-HD150 can give “**prohibit**” commands to the CMCN. These commands will tell the indoor unit to ignore certain commands from the respective remote controller being prohibited.

### EXAMPLE 1 Using CITY MULTI R2 Series Heat Recovery Condensing Unit:

**Specs:** Indoor units shall maintain occupied heating set-point of 70°F and cooling set-point of 75°F and an unoccupied heating set-point of 65°F and cooling set-point of 80°F. System shall tie into existing BMS system through BACnet™ or LonWorks®. Provide set-point adjust and override button during unoccupied times (5pm to 8am).

#### BAS Command:

8:00 AM	ON	AUTO	72°F	Prohibit MODE	Prohibit ON/OFF	Permit SetTemp
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**Indoor Unit:** Complies with settings until another command is given...

**Occupant:** Walks up to the wall controller and raises set-point to 74°F at 8:15am.

**BAS Read:** Sees a COV (change of value) in the SetTemp Point and updates their own 3<sup>rd</sup> party graphics pages to reflect the new settings.

**Indoor Unit:** Complies with settings until another command is given...

#### CAUTION:

If BAS sends refresh of command points given at 8am every 5 seconds, then the Occupant will not be able to get desired setting adjustments to last for more than 5 seconds.

#### SOLUTION:

BAS only sends commands **ONCE** at desired time or on an appropriate Change of Value to establish indoor unit settings. New and different commands are sent when change is desired at a later time in the day.

### EXAMPLE 1 (Continued): Unoccupied Conditions.

#### BAS Command:

5:00 PM	ON	COOL	80°F	Permit MODE	Permit ON/OFF	Permit SetTemp
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(SUMMER)

**BAS Command:**

5:00 PM	ON	HEAT	65°F	Permit MODE	Permit ON/OFF	Permit SetTemp
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(WINTER)

NOTE: Allows room temp to drift to the relaxed set-point. Units left in AUTO mode will drive room temperature to the set-point, an undesired effect.

**Occupant:** comes into building after hours and changes set-point to 72°F at 6:15pm.

**BAS Read and Command:** Sees the COV and starts an override timer in the BAS Program to send the Unoccupied Settings back to the Indoor unit after the pre-determined time expires.

5:00 PM	ON	COOL	80°F	Permit MODE	Permit ON/OFF	Permit SetTemp
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- or -

5:00 PM	ON	HEAT	65°F	Permit MODE	Permit ON/OFF	Permit SetTemp
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The next day to start cycle again...

**BAS Command:**

8:00 AM	ON	AUTO	72°F	Prohibit MODE	Prohibit ON/OFF	Permit SetTemp
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**BACnet™ and LonWorks® POINT INFO:**

**BAC-HD150** BM Adapter *Instruction Book (WT05542X03.pdf)*

-Object ID and Instance Numbers on Page 10

-PICS document on CMCN controls CD or [www.bacnetinternational.net/btl/](http://www.bacnetinternational.net/btl/)

**LMAP03U** Network Variable Specification (*03\_NVspec\_ver304e\_ul.pdf*)

-SNVT Table on pages 10 – 13

-XIF file on the CMCN controls CD or [www.mylinkdrive.com](http://www.mylinkdrive.com)

**NOTE about the Y-series:** Use of the AUTO mode assumes an R2-series Outdoor unit is being used with a BC controller to provide simultaneous heating and cooling options at the indoor units. If a Y series outdoor unit is used or no BC controller is present, replace the AUTO mode in the example with the proper MODE needed for the desired effect. Additionally, with a **Y-series ALL INDOOR UNITS MUST** be commanded to the **SAME MODE** for Heat Pump reversing valve to change positions. The BMS can monitor the effective set-point and the space temperature generating a heat or cool request to determine best time to switch Y series outdoor unit between heating and cooling. This is typically done with programming accounting for Outside Air conditions and number of Heating and Cooling requests from the zones, similar to a TWO-PIPE water fan-coil system.