

# Application Note 3013

## LMAP03U Quick Start

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## Introduction

This Application Note provides an overview related to the programming and start up of LMAP - the LonWorks interface to the CITY MULTI controls network.

## Setting up LMAP

### STEP 1

Send the following information to the integrator assigned to program and startup the LonWorks® system on this project:

- LMAP03U Network Variable Specifications Guide
- Installation Instructions
- Technical Service Manual
- .XIF file
- CMCN – LMAP03U Quick Start Application Note
- CMCN – 3<sup>rd</sup> Party Scheduling Strategies Application Note

### STEP 2

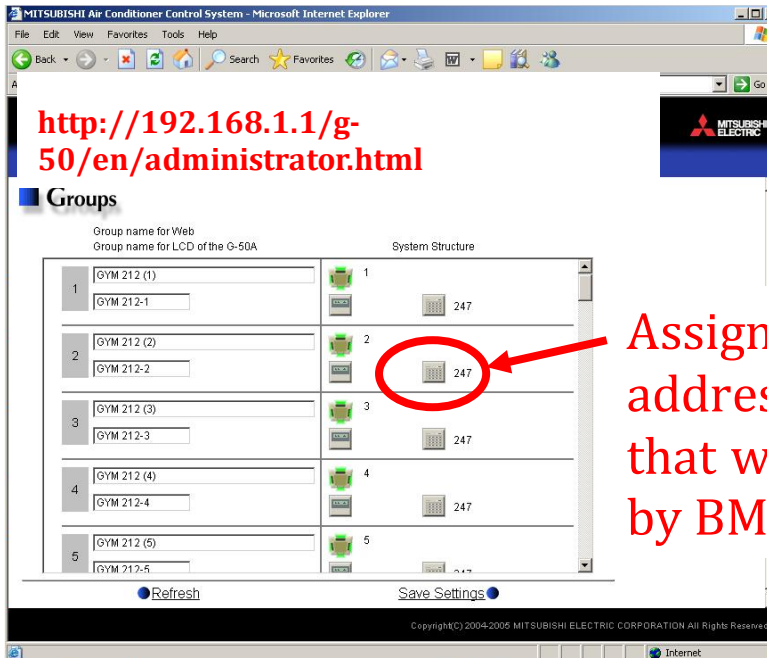
All units are running, checked out and communication is error free.

### STEP 3

The GB-50ADA or AG-150 initial settings have been configured.

NOTE: The LMAP's MNET Address (Default = 247) "MUST" be included in "EACH" individual GROUP in the GB-50ADA or AG-150 for that Group's data to be seen or controlled by the LMAP.

To confirm this, Login to the GB-50/AG-150 in the Initialization Mode / Select Groups / Look at each Group and confirm that the System Controller ICON (Furthest ICON on Right) has an address 247 next to it (or address of the LMAP as shown in Figure 1).



Assign LMAP03U  
address to all groups  
that will be controlled  
by BMS

Figure 1. Central Controller Browser

#### STEP 4

Before applying power to the LMAP03U, check to make sure the dip-switches are set correctly for use on this project. Figure 2 displays the dip switch locations on the control board.

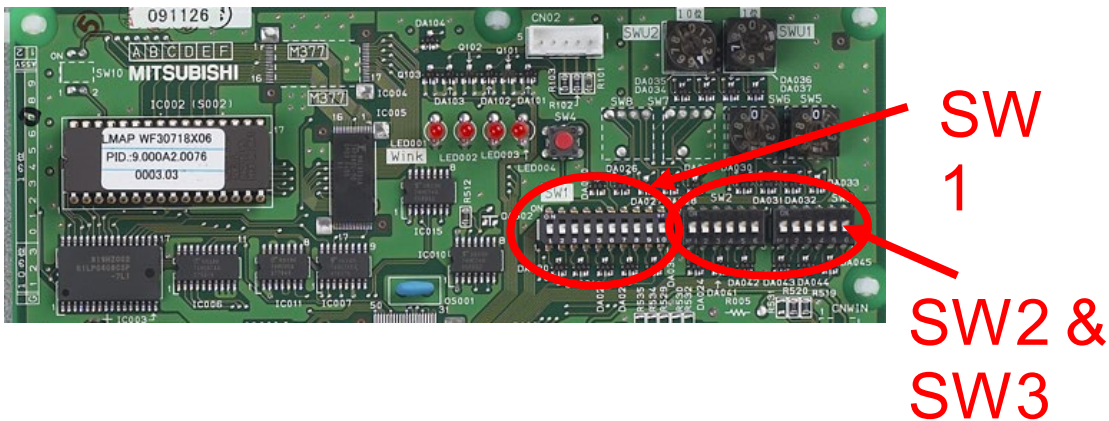


Figure 2. Dip Switch Locations on Control Board

**SW 1-1: ON** if you wish to allow the BAS to send the Prohibit Remote Controller Operations command to the indoor unit.

**SW 1-2: ON** if there is a GB-50ADA or AG-150 (Central Controller) in the system.

\*Check SW2-1 on the Outdoor Unit and turn ON if there is a Central Controller on the system. Verify 30VDC on the M-Net wire.

**SW 1-3:** Transmission Interval (how often our data is sent out) 1 minute.

**ON** if Indoor Units is less than 30

**OFF** if Indoor Units is 31-50 (OFF = 10 minute interval)

**SW 1-4:** **ON** if you want to allow the BMS to reset the filter status.

**SW 1-5:** **OFF** if LOSSNAY is not present or controlled locally.

**SW 1-6:** **OFF NOT USED**

**SW 1-7:** **ON** if SNVT switch point being used by Integration System follows the Echelon SNVT standards. Integrator will need to configure SNVT switch point to transfer both Binary Status (0=Off or 1=On) and Binary Value (0=0.0 and 1=100.0)

**SW 1-8:** **OFF** to disable Thermo OFF (typically not used) command

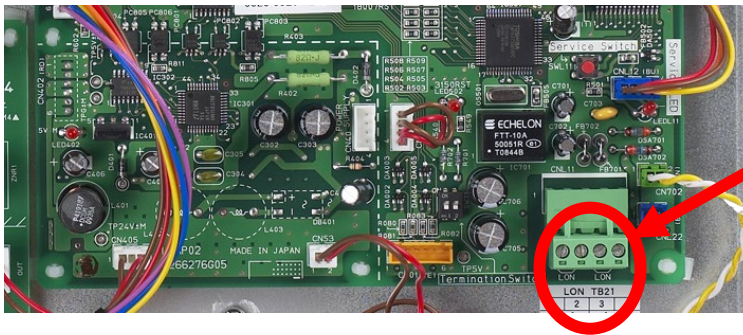
**SW 1-9:** **OFF** unless you want to be in “service mode”

**SW2:** **OFF** used in “service mode” while SW1-9 is ON

**SW3:** **OFF** used in “service mode” while SW1-9 is ON

## STEP 5

Make sure the LonWorks® system cable is disconnected from the LMAP03U (see Figure 3 for the location of the control board connection.)

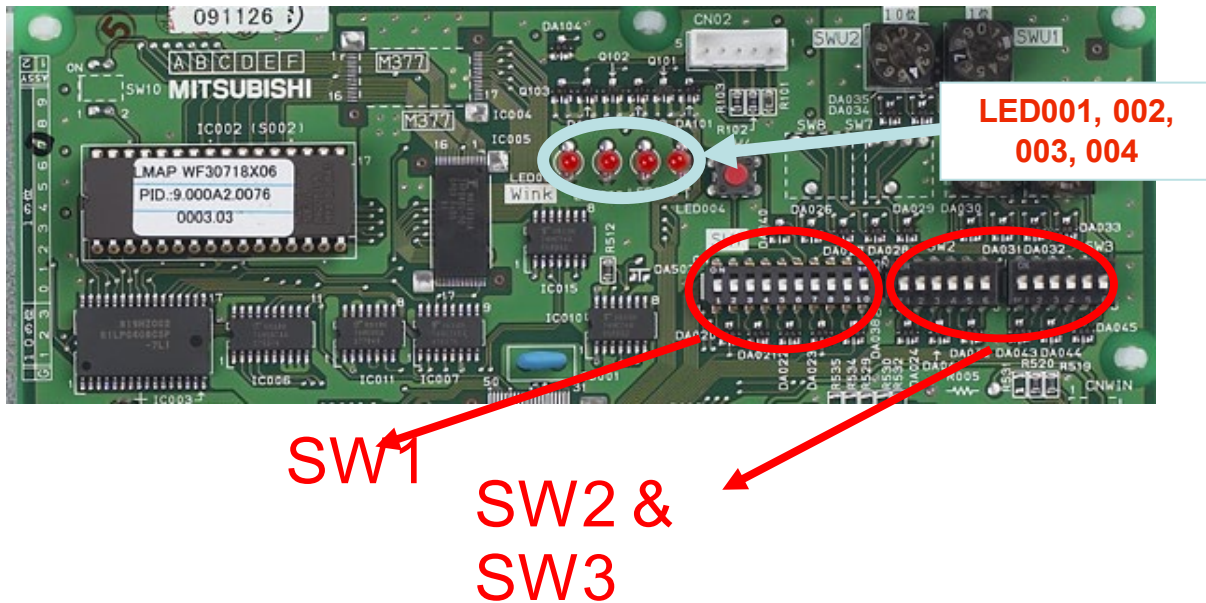


Twisted  
pair cable  
FTT-  
10A(Free  
Topology  
78kbps)

**Figure 3.** Control Board Connection Location

## STEP 6

Power up the LMAP03U and wait for initialization



**Figure 4.** Control Board Dip Switch and LED Location

- a. The LED002 will come on and then go out when the initialization process is complete (see Figure 4 for the LED location.)
- b. WAIT 15-20 minutes after the power has been restored before trying to perform any type of integration with the LMAP03U. LED002 will turn OFF when LMAP03U is ready for integration.
  1. If LED002 does not turn OFF, then review troubleshooting steps for LED002 = ON in the LMAP03U Manual.
  2. Check to make sure dip-switch settings are correct for YOUR system
  3. Sometimes, it may take a second power down and power up cycle to initialize due to M-NET interference with Maintenance Tool or other communication during initialization.
- c. The information delete process may be needed to wipe the LMAP03U clean if changes are made to the M-NET or the devices.
  1. Change the service dip-switch (SW2-1) to ON.
  2. Change the dip-switch (SW3-2) to ON.
  3. When erasing the system information, the maintenance LED "System Information Erase LED (LED001)" will turn ON.
  4. When the system information has been erased, the maintenance LED "System Information Erase LED (LED001)" will turn OFF, and the maintenance LED "System Information Erase Complete LED (LED002)" will turn ON.
  5. Turn the LMAP03U service switch (SW2-1) OFF.
  6. Change the LMAP03U system information delete switch (SW3-2) from ON to OFF.
  7. Turn the LMAP03U power OFF.

8. Turn the LMAP03U power ON.
- d. Connect the LonWorks® system cable (typically provided by the BMS contractor) after initialization is successful.

## STEP 7: Integration

The Integrator needs to SET the following Configuration Properties once they have FOUND and MATCHED the LMAP DEVICE in their system. Please note the settings indicated below reflect the MINIMUM timing settings available in the LMAP.

### LMAP “Configuration Properties” SNVT’s...

nciMinOutTm	5.0	Time Between nvo’s
nciStartHrtBt	1200.0	LMAP Initialization takes 15 minutes after pwr restored
nciStartOutTm	1200.0	LMAP Initialization takes 15 minutes after pwr restored
nciInitStartTm	1200.0	Minimum Valid Setting
nciInitOutTm_1	1.0	Time between nvo’s at initial output
nciInitOutTm_2	5.0	Time between indoor units
nciSndHrtBt_1	600.0	Time between updates – On/Off – Mode – SetPoint
nciSndHrtBt_2	60.0	Time between updates – Space Temp
nciAnalogWidth	0.5	Min Space Temp must change before updating (Celsius)
nicAnlgMonTm	60.0	Seconds between LMAP03U and Indoor Unit Space Temp Updates. DIP SWITCH 1-3 Must be ON also.
nciRcvHrtBt_1	600.0	Time between nvi Updates (ProOnOff, ProMode, ProSetP)
nciRcvHrtBt_2	600.0	Time between nvi Updates (ThermoOff only)
nciEffectTm_1	60.0	Time between nvi Updates (AllOff only)
nciEffectTm_2	60.0	Time between nvi Updates (AllPro only)
nciPollFetch	0	Always leave at 0
nciOffline	0	Always leave at 0
nciCoolLrSetP	-0.01	ME Remote Controller ONLY – Not Used
nciHeatUpSetP	-0.01	ME Remote Controller ONLY – Not Used
nciRmOpLck	0	ME Remote Controller ONLY – Not Used
nciRmDsp_1	0	ME Remote Controller ONLY – Not Used
nciRmDsp_2	0	ME Remote Controller ONLY – Not Used
nciSet_1	0	Always leave at 0



## Understanding the Mitsubishi Electric System:

By this point the integrator should understand how our system operates. The most important things to note are “LAST COMMAND WINS” and “PROHIBIT REMOTE CONTROLLER”.

- The logic that written in the BMS program will need to send a command to the control point (e.g. SetTemp) ONCE only. It should write to the input only at the time a change is desired at the input. Some BAS systems refresh or re-send their commands at regular intervals. These intervals are typically between 5 seconds and 10 minutes. If the BMS commands are constantly commanding the point, the Room Controller will not be able to control anything locally because the BMS command will be the LAST COMMAND every few seconds or minutes.
- PROHIBIT functions of the Room Controller during certain times to lock out local control. ALLOW during other times for use in a “local override” scenario. Send sweeping commands to all indoor units returning the building back to default settings at key times in the day to maintain original desired set-points.
- See *Application Note 3001: 3<sup>rd</sup> Party Scheduling* for more explanation on schedules.