



**Automate Domotique  
v2.43d**

**&**

**Automate Domotique PRO  
v2.43d**

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# Welcome to AUTOMATE DOMOTIQUE

Automate Domotique and Automate Domotique PRO are powerful interactive automation system that integrates control of the different subsystems throughout a home or business including Lighting, Security, Entertainment (Audio/Video), Heating/Cooling, Irrigation, etc. The system can be controlled by computers, X10 controllers, in-wall keypads, wireless keypads (RF remotes), infrared remotes, analog and digital inputs, and time/event schedule. Automate Domotique features include:

- ⌘⌘ **2-Way X10 Communication** - Sends and Receives standard and advanced X10 signals for control of lighting and appliances.
- ⌘⌘ **2-Way IR Communication** - Sends and Receives infrared signals (with optional InfraRed Xpander™) for control of audio, video, home theater, and other infrared-operated equipment.
- ⌘⌘ **2-Way SERIAL Communication** - Sends and Receives ASCII via RS-232 ports for connection to computer, modem and other serial devices (thermostats, weather stations, etc.).
- ⌘⌘ **INPUTS AND OUTPUTS** - (Automate Domotique PRO ) 16 Digital / 8 Analog Inputs, 8 Relay Outputs (expandable) for interfacing with security systems, heating/cooling systems, irrigation, etc.
- ⌘⌘ **Built in Battery Backup** - saves your schedule in case of power outage.
- ⌘⌘ **External Battery Backup** - (Automate Domotique PRO ) allows connection of 12V battery (optional) to maintain system operation during power outages.
- ⌘⌘ **Real-time clock/calendar** - automatically adjusts for Daylight Savings and Leap Year.
- ⌘⌘ **SunRise/SunSet calculations**
- ⌘⌘ **X10 Sequence Feature** - A series of X10 commands within a defined time window can trigger an Event. For example, pressing A-1 A-2 A-1 within 3 seconds could dim the lights.
- ⌘⌘ **Message Log** - Your schedule can log any Event you specify with a time-date stamp attached
- ⌘⌘ **Security Mode** - Have your front porch light (and/or other devices) come on at 'approximately' the time you specify.
- ⌘⌘ **Expansion port** - for add-on products
- ⌘⌘ **Power Fail Catch-up** - returns devices to their scheduled state when power fails and is then restored.

## What's Included

In addition to this manual, your Automate Domotique package contains:

- ⌘⌘ One Automate Domotique or Automate Domotique PRO
- ⌘⌘ One AC power adapter
- ⌘⌘ One 4-Conductor Modular cable
- ⌘⌘ One DB9-DB25 adapter
- ⌘⌘ Program Diskettes - Event Manager Software
- ⌘⌘ One Powerline Interface Module (TW523 or Equivalent)

## What you need

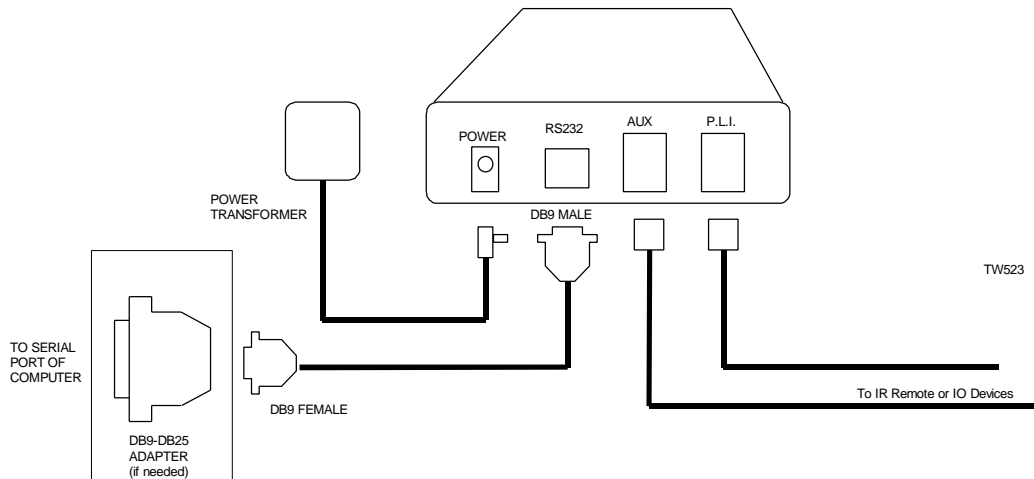
- ⌘⌘ An IBM PC-AT or 100% compatible computer capable of running Microsoft Windows , with an asynchronous serial port.
- ⌘⌘ A 3.5" high-density floppy disk drive for software installation.
- ⌘⌘ A hard disk with at least 1.6 mega-bytes available or a high capacity floppy diskette drive.
- ⌘⌘ Microsoft Windows 3.1 or higher or Win95.

# Installing AUTOMATE DOMOTIQUE

## Installing Automate Domotique

Choose a mounting location accessible to a continuously powered ac source

1. Turn off your PC.
2. Plug one end of the 9 pin Serial cable into Automate Domotique,s RS-232 port.
3. Plug the other end of the 9 pin Serial cable into your PC's serial port (use the DB9-DB25 adapter if needed).
4. Plug one end of the modular TELEPHONE type cord into the Power Line Interface module.
5. Plug the other end of the cord into the Automate Domotique jack labeled "P.L.I."
6. Plug the Power Line Interface into an AC outlet.
7. Plug the power transformer into Automate Domotique's Power-In jack.
8. Plug the power transformer into an AC outlet.
9. Restart your PC.



---

**Note: Do not plug the Power Line Interface into a filtered outlet or power s trip - this will degrade X10 signals!**

---

## Installing the Event Manager Software

Before installing Event Manager, you should copy the distribution disks onto a set of working disks, then store the original disks for safekeeping.

Event Manager comes with an installation program that will copy the various parts of the Event Manager software onto the drives and directories that you specify. The program's menus and prompts will lead you through the install process.

### To Install:

Start Microsoft Windows.

1. Insert Setup disk in drive A
2. From Program Manager (Windows 3.1X), select File menu and choose Run (Win95 select START and choose Run).
3. Type a:\setup and press ENTER

A comprehensive installation/setup program will take over at this point. You will be prompted for directory information, drive, etc. Each prompt will contain default (recommended) information.

After the Install program is done, a Setup program will start to allow you to set Event Manager parameters.

## Starting Out

After connecting all cables and completing the Setup program it is time to start the Event Manager Software and test communications.

### Starting Event Manager

**Windows 3.1X:** Double click with your mouse on the Automate Domotique WinEVM icon located in the WinEVM group.

**Win95:** Select START, then select PROGRAMS, select WinEVM, then select WinEVM.

Event Manager will load your **Device DataBase** and the last Schedule that you were working on. If this is the first time you have used Event Manger, no **Device DataBase** will exist and a blank one will be created for you.

### Testing Communications

Select Utilities | System Info. If you see a screen appear with various system parameters, then the communication path between your PC and Automate Domotique is working. If an error occurs:

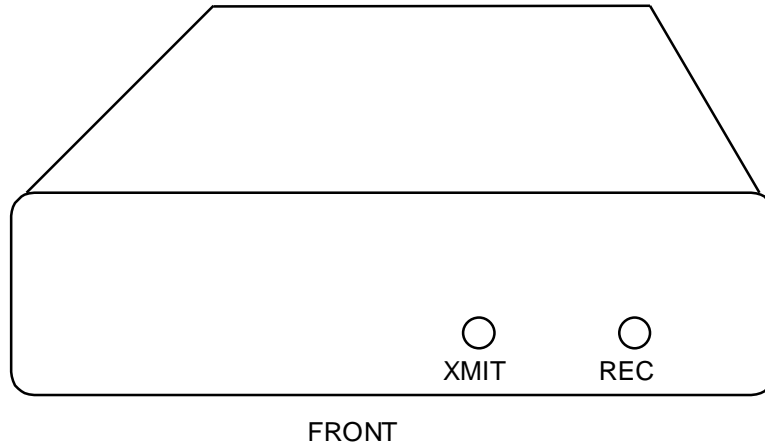
1. Make sure you have specified the correct Com port.
2. Windows cannot support shared hardware interrupts. Since COM1 and COM3 (also COM2 and COM4) share the same interrupts, you cannot have one serial device installed on COM1 and the other device installed on COM3 (or one device on COM2 and another on COM4).
3. If you have an external modem, check that it is connected to a serial port. If you have an internal modem, check the switch setting (on the board) to ensure that it is assigned to the appropriate COM port.
4. Select the Serial Port option from the System menu to check that your specification of the COM port is correct. If you cannot start WinEVM, use an editor to display the C:\WINDOWS\WINEVM.INI file. There is a line under the section entitled [WinEVM] that should appear as: COMPORT = n , where n = 1 to 4.
5. There are a number of TSR (Terminate and Stay Resident) programs that are provided with voice fax modem boards. If you have installed another software package that utilizes your board, make sure this program is not running when you start Windows and SuperVoice. If it is still running, it will assume control of the Com Port and no other programs will have access to this port. Check your AUTOEXEC.BAT file to ensure that the program is not loaded during the boot up routine

Event Manager will load your **Device DataBase** and the last Schedule that you were working on. If this is the first time you have used Event Manger, no **Device DataBase** will exist and a blank one will be created for you.

# Automate Domotique Specifications

## Automate Domotique

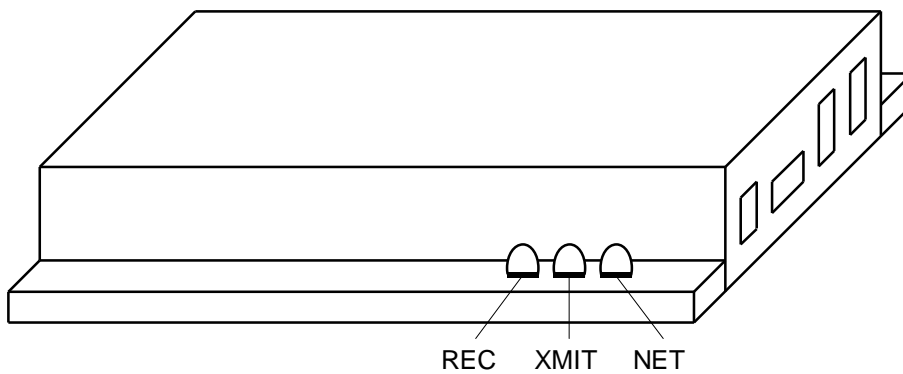
The Automate Domotique Front Panel contains two LED status indicators.



Both LED's are normally ON. The "XMIT" LED (green) will flash when Automate Domotique transmits an X-10 command. The "REC" LED (yellow) will flash when Automate Domotique receives an X-10 command. Both LED's will flash at a 1-second interval if the PSC05 is not plugged in and attached to the Automate Domotique.

## Automate Domotique PRO

The Automate Domotique PRO contains three LED status indicators.



The green and yellow LED's are normally ON. The "XMIT" LED (green) will flash when Automate Domotique PRO transmits an X-10 command. The "REC" LED (yellow) will flash when Automate Domotique PRO receives an X-10 command. They will flash at a 1-second interval if the TW523 is not plugged in and attached to the Automate Domotique PRO.

The "NET" LED (red) will flash indicating network activity (although it will still flash even if there are no IO-Xpander's attached). The flash rate is dependant on Schedule size, the larger the Schedule, the slower it will flash.

## Electrical Specifications

Power Supply 12VDC Plug-In Transformer  
 Transmission Rate: 9600 bps asynchronous  
 Data Format: 8 Data Bits, No Parity,  
 One stop Bit

Screw Terminals Digital Inputs,  
 Analog Inputs, Relay  
 Outputs

Compatibility IBM or compatible  
 w/asynchronous serial  
 port

Required Operating System  
 Windows 3.1x or Win95

Required Disk Space 2 Mbytes  
 Physical Size: Automate Domotique  
 1.5" H, 6.5" D, 5.5" W  
 Automate Domotique PRO  
 1.5" H, 6.5" D, 8" W

### Digital Inputs

Quantity 16 (expandable to 80)  
 Type Non-polarized, opto-  
 isolated  
 Isolation 500 V channel-channel &  
 channel-ground  
 Input Range 4-24V DC or AC (50-1,000  
 Hz)

Input Resistance 470 ohms min  
 Response Time 100 milliseconds typ,  
 requires pulse width of  
 100 milliseconds

### Analog Inputs

Quantity 8 (expandable to 40)  
 A/D Type Successive approximation  
 Resolution 8 bit (20mV/bit)  
 Input range 0-5 V(uni-polar)  
 Filtering none  
 Conversion Time 20us type, 30us max  
 Linearity +/- 1 bit  
 Accuracy 0.2% of reading +/- 1 bit  
 Input Current 100 nA max at 25 degrees C

### Relay Outputs

Quantity 8 (expandable to 40)  
 Contact Rating 2A @ 24 VDC  
 Contact type Gold overlay silver  
 Contact resistance 100 milliohms max (initial)  
 Contact arrangement SPDT  
 Operating time 20 milliseconds max  
 Release time 10 milliseconds max  
 Life rating Mechanical: 10 million  
 operations min  
 Electrical: 100,000 min  
 @ full load

## Programming Specifications

X-10 Devices 256  
 Timers 32  
 Time Labels 32  
 Flags 256  
 Variables 256  
 IF Macros 16  
 THEN Macros 256  
 IR Commands 500 (with optional JDS InfraRed Xpander™)  
 Lines of Code approx. 3000-4000 (based on actual schedules, each IF condition or THEN action uses different amounts  
 of memory)

# What is Event Manager

Event Manager is the user interface that runs on your PC that lets you create schedules for use with AUTOMATE DOMOTIQUE. With Event Manger, you can create and edit schedules that once downloaded into AUTOMATE DOMOTIQUE, allow total control of your home or office.

## How Event Manager Works

The following flowchart shows the steps for creating a schedule and demonstrates how Event Manager works with AUTOMATE DOMOTIQUE.

### Device DataBase

Before you create a Schedule for AUTOMATE DOMOTIQUE, it is recommended that you create a Device DataBase. This tells the Event Manager what devices are in your home. Devices may be added, changed or deleted in the Device DataBase at any time.

### Events

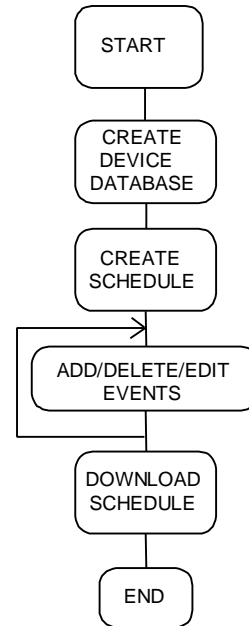
An Event consists of an “IF” section (conditions), followed by a “THEN” section (actions). If the IF section is true, the THEN section is executed. If not, the THEN section is skipped.

### Screen Types

There are many types of Event Manager screens. The main screen will show the main menu bar, the time and date and the current schedule in the editor workspace.

#### Event Manager User’s Guide

The menu bar is your primary access to all the menu commands. If a menu command is followed by an ellipsis mark (...), choosing the command displays a dialog box. A command without an ellipsis mark indicates that once you choose it, that action occurs.



## Event Manager Windows

Most of what you see and do in the Event Manager environment happens in a window. A window is a screen area that you can move, close and open. Only one window can be active at any time. The active window is the one that you’re currently working in. Any commands you choose or text you type generally applies only to the active window. Event Manager makes it easy to spot the active window by highlighting the window title. If your windows are overlapping, the active window is always the one on the top of all the others (the foreground).

## What is X-10

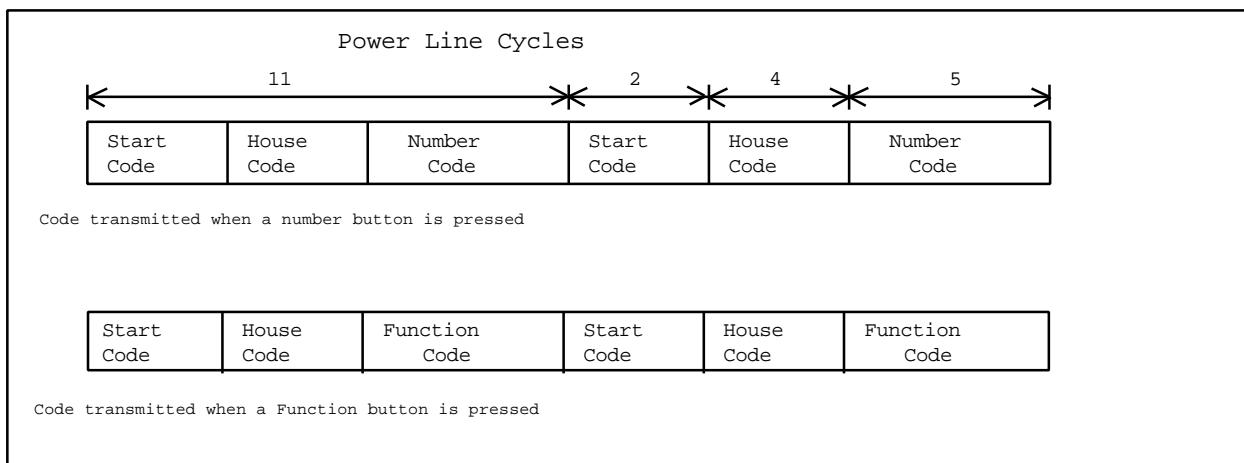
The X-10 POWERHOUSE System is a line of home automation products designed to control lights and appliances using existing electrical wiring as a communications medium. X-10 is the “De Facto” standard for Power Line Carrier (PLC) transmission. The code format was first introduced in 1978 and is compatible with many manufacture’s versions of PLC devices.

## X-10 Addresses

All X-10 receiver modules have two code dials: a house code dial and a unit code dial. There are 16 house codes, ranging from the letters A to P. There are also 16 unit codes, ranging from 1 to 16. That means there are 256 possible combinations of module addresses.

## X-10 Theory

X-10 is based on a technique known as carrier current communication. High frequency bursts are sent out over the power line that are received by the receiver modules. The high frequency bursts, or bits, are sent to coincide with the zero crossing of the AC power line. The receiver modules know to start listening to the AC line for a bit sequence when it detects a zero crossing. The format used by X-10 is an 11-bit sequence consisting of a start code, a house code, and either a function code or a module number. The first 2 bits represent a Start Code, the next four represent the HouseCode, and the last five represent the KeyCode, either a NumberCode (1 through 16) or a Function Code (ON, OFF, All Lights On, etc.). This complete block, (StartCode, HouseCode, KeyCode) is always transmitted at least twice.



To understand why an X-10 transmission can only contain either a module number or a function code, you need to understand how a manual X-10 system works. Use the MegaController to see what is being sent when a button is pressed from a manual control console. You will see that when a number button is pressed, it sends the HouseCode-NumberCode to select the module. When a function button is pressed, it sends the HouseCode-FunctionCode to control the selected module.

## DIM/BRIGHT Limitations

The Power Line Interface can receive Dim and Bright codes, but the output will represent the first Dim or Bright code received, followed by every third code received, i.e., the output from the Power Line Interface will not be a continuous stream of Dim or Bright codes as transmitted.

**What this means to AUTOMATE DOMOTIQUE:** AUTOMATE DOMOTIQUE keeps track of Dim/Bright levels for any of the 256 X-10 devices. Since AUTOMATE DOMOTIQUE cannot reliably receive Dim/Bright codes sent by another X-10 controller, any Dim or Bright code received by AUTOMATE DOMOTIQUE will be ignored. This means that as long as you use AUTOMATE DOMOTIQUE to dim or brighten a light, it will know exactly what level of brightness the light is at. But if you dim or brighten a light using a controller other than AUTOMATE DOMOTIQUE, AUTOMATE DOMOTIQUE will ignore those commands and not update the Dim/Bright level for the light.

**The Bottom Line** - If you use AUTOMATE DOMOTIQUE to control dim/bright levels, dimming or brightening using another X-10 controller or at the switch itself, will cause AUTOMATE DOMOTIQUE to get out of sync with what the real level is.

## Event Basics

“Junior, IF you eat your vegetables, THEN you can watch TV, ELSE you’re going to bed!”

This section gives you an overview of what an Event is and how it is used in a schedule. An understanding of the **Event Concept** is very important to make the most of AUTOMATE DOMOTIQUE. Be sure that you understand this concept before you create your own schedule.

## What is an Event

An Event consists of an “IF” section, followed by a “THEN” section. If the IF section is true, the THEN section is executed.

## Event Type

There are two types of Events, the IF-THEN and the IF-THEN-ELSE.

### IF-THEN

The simplest form of an Event is an IF-THEN:

```
if
  condition is true
then
  do action
end
```

If the condition is true, then the action is executed. This simple form of an IF statement gives you the choice of executing an action(s) or skipping it. For instance, if the opening statement was put into an IF-THEN statement, it might look something like this:

```
if
  eat your vegetables
then
  watch TV
end
```

IF’s are easy to understand because we use them constantly in our daily conversations.

### IF-THEN-ELSE

Event Manger also lets you choose between two actions with the IF-THEN-ELSE structure.

```
if
  condition is true
then
  do action1
else
  do action2
```

In the previous example, if the condition is true, the first action is executed, if the condition is false, the action following the else statement is executed.

For example, if the opening statement was put into an IF-THEN-ELSE statement, it might look something like this:

```
if
```

```

    eat your vegetables
  then
    watch TV
  else
    goto bed
  end

```

IF Junior eats his vegetables, he can watch TV, IF he does not, he will have to go to bed.

## FAST EVENT

Fast Events are Events triggered by X10 ON/OFF commands and Digital Inputs (AUTOMATE DOMOTIQUE 's) going ON/OFF. These events are executed immediately when triggered regardless of schedule size. A Fast Event can be placed anywhere in the schedule.

## Logic Type

The Event's Logic Type refers to whether the IF conditions will be 'ANDed' or 'ORed' together when determining if the THEN/ELSE actions should be executed.

### AND

If 'AND' is chosen, **all of the conditions** must be met before any action will be taken.

```

EVENT
If
  eat vegetables
  and dishes washed
Then
  watch TV
End

```

In this example, Junior must eat his vegetables **and** wash the dishes to get to watch TV, only doing one will not work. This is what the AND does: All of the conditions must be true in order to make the actions happen.

### OR

If 'OR' is chosen, **only one condition** has to be met before any action will be taken.

Suppose Junior's mother decides not to be so tough, changing the orders to, "Eat you vegetables **or** wash the dishes and you can watch TV".

```

EVENT
If
  eat vegetables
  or dishes washed
Then
  watch TV
End

```

Now junior has a choice, either eat his vegetables or wash the dishes, and he will be able to watch TV. This is what the OR does: Only one of the conditions has to be true in order to make the actions happen.

Any number of IF conditions can be combined to control any number of THEN actions. For example:

```

EVENT sample event
If
  condition 1 is true
  and condition 2 is true
  and condition 3 is true
  and condition 4 is true
Then

```

```
do this action
End
```

In this example, **all the conditions** must be met before the ‘THEN’ action will be executed. More than one action may be executed in the ‘THEN’ section of the event.

For example:

```
EVENT sample event
If
  condition1 is true
  or condition2 is true
Then
  do action1
  do action2
Else
  do action3
  do action4
  do action5
  do action6
End
```

In this example, if condition1 is true **or** condition2 is true, then do action1 and action2, if neither condition is true, then do action 3, 4, 5 and 6.

A more meaningful Event would use real conditions to control real devices. For example:

```
EVENT sample event
If
  Time = 6:00 PM .MTWTF.
Then
  (X: Frontporch Light B 3) ON
End
```

In this example, when the time is equal to 6 PM on any weekday but not weekends, the Frontporch Light turns on.

```
EVENT sample event
If
  (F: Alarm Activated) is SET
  and Time = 6:00 PM .MTWTF.
Then
  (X: Frontporch Light B 3) ON
End
```

In this example, if the flag ‘Alarm Activated’ is set **and** the time is equal to 6 PM on any weekday but not weekends, turn on the Frontporch Light.

## Compound AND/OR

Event Manager can use compound AND/OR logic. As an example:

```
EVENT AND/OR Sample Event
If
  (X: Make Coffee C 1) is ON
-AND-
  Time = 6:00 AM .MTWTF.
  or Time = 10:00 AM S.....S
Then
  (X: Coffee Maker C 2) ON
  (X: Make Coffee C 1) Idle
  Delay 01:00:00
  (X: Coffee Maker C 2) OFF
End
```

In this example, Otto defines a ‘Make Coffee’ switch as X-10 address C1. He turns this switch ON at night only if he puts coffee and water in the coffee machine. If this switch is ON -AND-, it’s 6 AM weekdays OR 10 AM weekends, then turn on the coffee maker, set the ‘Make Coffee’ switch to Idle, then turn off the coffee maker after 1 hour.

Event Manager can use compound OR/AND logic as well. As an example:

```

EVENT OR/AND Sample Event
If
  (X:Alarm Active L 1) is ON
  and Time = 6:00 PM SMTWTFS
-OR-
  (X:Alarm Active L 1) is OFF
  and Time = 8:00 PM SMTWTFS
Then
  (X: Front Door B 1) ON
  (X: Garage Light B 2) ON
End

```

In this example, Otto wants his outside lighting to turn on at a different time based on whether or not the security system is set. If the security system is ON and it's 6 PM, -OR-, the security system is OFF and it's 8 PM, then turn on the Front Door and Garage lights.

## Nesting

Nesting is a way to add complex decision making into your Events. The maximum number of Nested Events is 3.

## Summary of valid 'IF' conditions

Time equal to hh:mm days	hh = hour , mm = min, days = SMTWTFS
Time is less than hh:mm days	hh = hour , mm = min, days = SMTWTFS
Time is greater than hh:mm days	hh = hour , mm = min, days = SMTWTFS
Time Label	Label given to a certain time
Date	(equal, before, after)
Equal to SunRise /SunSet days	days = SMTWTFS
Before SunRise/SunSet days	days = SMTWTFS
After SunRise/SunSet days	days = SMTWTFS
X-10 Device	State = ON/OFF/IDLE Module A1 - P16
X-10 Sequence	Up to 6 sequential X-10 commands within a specified time window
Timer = Running, Stopped, Expired	32 timers (1 second resolution)
Flag = Set/Clear/Idle	256 flags
Variable "=", ">", "<", etc (0-255)	256 variables
IF Macro	A series of 'IF' conditions
ASCII Input	Up to 32 characters
System Variables	Power Restore, X-10 loss, First Schedule Pass, Power loss
Digital Inputs	ON/OFF/Toggles/GOES On/GOES Off states of Digital Inputs
Analog Inputs	Value of Analog Input (0-255)
Relay Outputs	On/Off
IR Sequence	Up to 10 sequential IR commands within a specified time window
IR Power Sensor	4 Power Sensors

Any combination of 'IF' conditions may be combined in an Event.

## Summary of valid 'THEN' actions:

X-10 Device = ON/OFF/DIM/BRI	Module A1 - P16
All Lights On	HouseCode A-P
All Lights Off	HouseCode A-P
All Units Off	HouseCode A-P
Timer	Load/Clear/Start
Flag	Set/Clear
Variable	Load/Clear/Inc/Dec
Message Log	8K of message space
Then Macros	Series of 'THEN' actions
ASCII Output	Up to 32 characters
IR Commands	IR Commands sent by InfraRed-Xpander
Relay Outputs	On/Off control of Relays

## Event Processing

After you download a Schedule to AUTOMATE DOMOTIQUE, AUTOMATE DOMOTIQUE will start with the first Event, check 'IF' conditions and do any actions, go on to the next event, do the appropriate actions, and so on until the end of the schedule is reached. AUTOMATE DOMOTIQUE then starts over at the beginning of the Schedule evaluating the first Event.

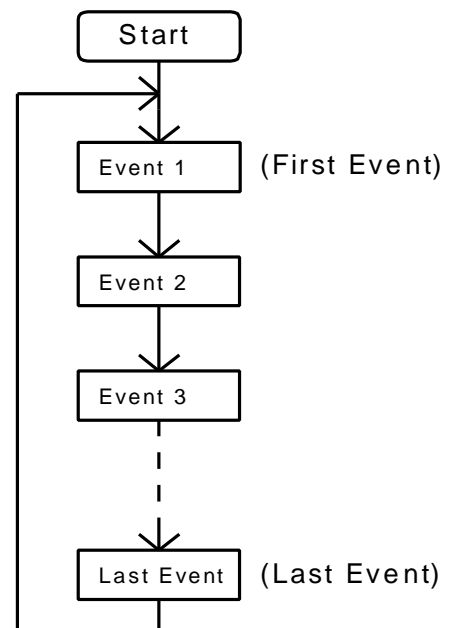
### Fast Events

Fast Events are Events triggered by X10 ON/OFF commands and Digital Inputs (AUTOMATE DOMOTIQUE 's) going ON/OFF. These events are executed immediately when triggered regardless of schedule size. A Fast Event can be placed anywhere in the schedule. Note that there can only be 1 Fast Event for a given trigger.

### Standard Events

Standard Events are based on an IF statement(s) and THEN actions and are processed in sequential order. Utilities | System Info will list the total time to complete one pass through a schedule.

When an event is evaluated, AUTOMATE DOMOTIQUE checks if the logic type of the Event is AND or OR. AUTOMATE DOMOTIQUE will use the logic type to evaluate the conditions and decide whether to take the required action(s). For AND logic events, **all the conditions** must be true, for the OR logic events, **only 1 condition** has to be true.



### Example 1 IF/THEN/ELSE

```

EVENT sample event
If
  After SunSet SMTWTFS
  or Before SunRise SMTWTFS
Then
  SET (F:It's Dark)
Else
  CLEAR (F:It's Dark)
End
  
```

The flag “It’s Dark” will be set if, the current time is after SunSet on any day, **or** if the current time is before SunRise on any day of the week, otherwise the flag “It’s Dark” will be cleared.

### Example 2 IF/THEN/ELSE

```
EVENT sample event
If
  Time is After 5:00 PM .MTWTF.
  and Time is Before 8:00 PM .MTWTF.
Then
  (X:Security Light B 7) ON
Else
  (X:Security Light B 7) OFF
End
```

This event will turn on the X-10 device that has the name “Security Light” if, the time is after 5 PM during weekdays **and** before 8 PM during weekdays. The event would turn the “Security Light” off when the time is not between 5 PM and 8 PM weekdays.

---

Important Note If the Event is not ‘IF Always’, each time an Event is evaluated, AUTOMATE DOMOTIQUE will not execute any action unless the conditions have changed since the last time the Event was evaluated. If the Event is ‘IF Always’, every time an Event is evaluated, AUTOMATE DOMOTIQUE will execute the actions if the IF conditions are met.

---

Using the previous example, if the current time was 4:59pm on Monday, the event would evaluate as not true (the first condition was not true, i.e., the current time was not after 5 PM), since during the previous evaluation cycle, the event evaluated as not being true, no changes occurred so no actions would take place. When the current time changes to 5 PM, both conditions are met (it is after 5 PM and before 8 PM), and the THEN actions are processed. On subsequent evaluation cycle no actions will be processed until the time is after 8 PM (because both IF’s are still true), whereas the event evaluates as not true, and the previous evaluation cycle evaluated as being true, the ELSE actions will be processed.

Example:

```
EVENT: sample event
If
  Time = 5:00 PM S.....S
  and (X:HotTub B 5) is ON
Then
  (X:HotTub Blower B 6) ON
End
```

In this example, IF the X-10 device ‘HotTub’ is ON, **and** the current time is 5 PM on Saturday or Sunday, THEN turn the X-10 device ‘HotTub Blower’ ON.

Example:

```
EVENT: sample event
If
  Time equals 5:00 PM S.....S
  or Time equals 6:00 PM .MTWTF.
Then
  (X:Porch Light B 3) ON
End
```

In this example, IF the current time is 5 PM on Sat or Sun, **or** the time is 6 PM on Mon-Fri., THEN turn on the X-10 device ‘Porch Light’ ON.

## IF Always Examples

The Event in Example 1 is an ‘IF Always’ type of Event. When A-1 is turned ON, AUTOMATE DOMOTIQUE will send the ‘B-1’ ‘B-ON’ X-10 command followed by a 2 second delay, and keep repeating this command as long as A-1 is on. This type of Event will keep executing the actions as long as the if condition(s) stay true. When using “IF Always” it is recommended that you insert some delay to allow time for other X-10 commands to be processed. In Example 2, when A-1 is

turned on, AUTOMATE DOMOTIQUE will send the 'B-1' 'B-ON' command once, until A-1 is turned OFF and ON again. This type of Event must see the conditions change before the actions are executed.

Example 1:

```
EVENT:  
If Always  
  (X:A 1) is ON  
Then  
  (X:B 1) ON  
  Delay 0:00:02  
End
```

Example 2:

```
EVENT:  
If  
  (X:A 1) is ON  
Then  
  (X:B 1) ON  
End
```

# A Quick Tour of Event Manager

## A Case Study: Otto Mashon

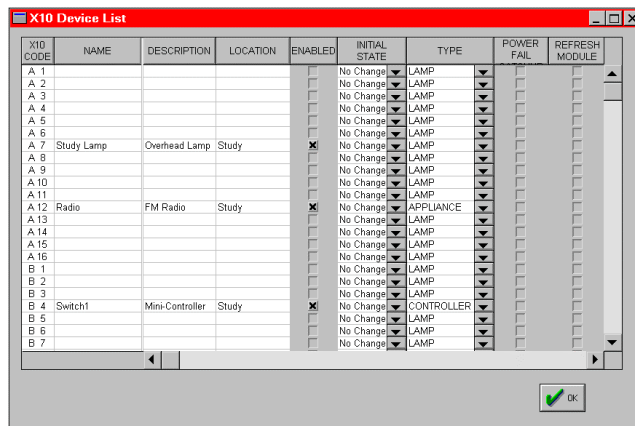
Otto Mashon just completed his installation and is ready to start automating. He starts by automating his study. Otto has always wanted to push a single button on his mini-controller to activate his Overhead Lamp and the Radio.

For a quick test, Otto creates a simple schedule to turn on A7 (Overhead Lamp) and J2 (FM Radio) whenever M5 (button 1 on his mini-controller) is pressed.

Otto begins by making a list of the X-10 devices. The list consists of the button on the mini-controller, the lamp and the radio. Once Otto's list is completed, he begins to create his **Device DataBase**

<u>NAME</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>HOUSE/UNIT Address</u>
Study Lamp	Study	Overhead Lamp	A-4
Radio	Study	FM Radio	A-12
Switch1	Study	Mini-Controller	B-4

Otto must define devices in his **Device DataBase** before he can use them in a schedule. This is done by selecting the **Define | X-10 Device** menu choice.



From here, Otto fills out the X-10 Device Definition Dialog Box with the information for each X-10 device that he wants to control and for each type of X-10 controller that will be used (the mini-controller in this example).

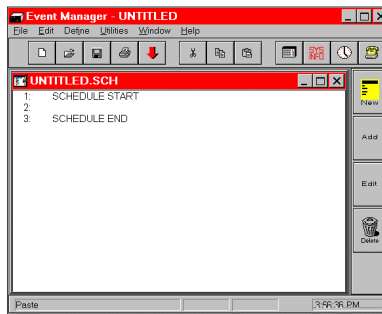
When Otto is satisfied with the names and selections for the three devices that he will be using, he leaves the X-10 Device List menu by pressing the [OK] button.

Now that Otto has the mini-controller, lamp and radio defined in the Device DataBase he wonders, "How do I want these X-10 devices to work together". He decides that when he enters his study, he wants to press a button on his mini-controller, and have both the Study Lamp and Radio to turn on. Likewise, when he leaves, he wants to turn the Study Lamp and Radio off with one button.

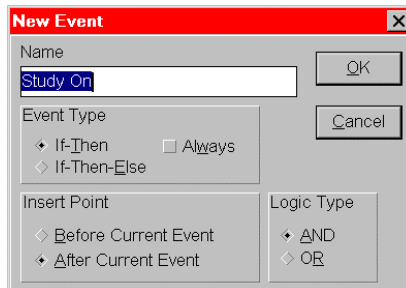
Otto starts thinking to himself, "Now how will this work? If the switch on the mini-controller is ON, then turn ON the Study Lamp and the Radio. Lets see;"

if  
 the mini-controller switch is ON  
 then  
 turn the Study Lamp ON  
 turn the Radio ON  
 end

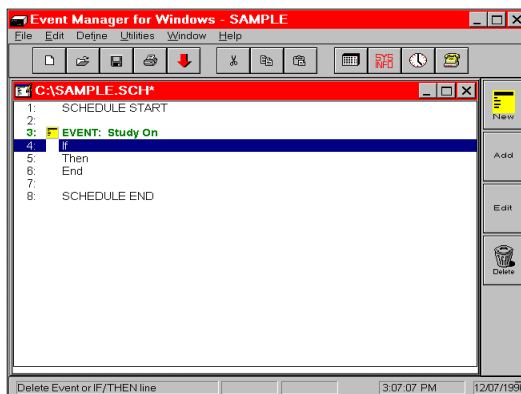
Since he hasn't created any Events yet, his Editor Workspace shows a schedule that is empty and is untitled.



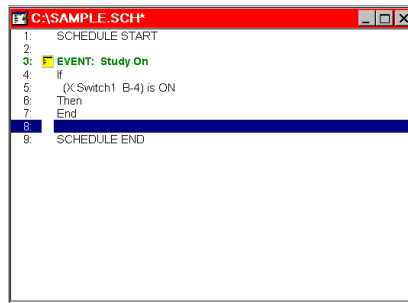
Otto's first step is to create an Event. He creates a new Event by pressing the [New] button in the right side ToolBox. He fills out the Event Definition dialog box with the name and description of the Event. In this example the name is "Study", the Event type is "IF-THEN", the logic type is "AND" and the insert point location is "After this Event"



When satisfied with his selections, he presses the [OK] button to accept the new Event. The new Event named "Study On" shows up in the Editor Workspace.



Looking at the workspace Otto wondered how he could make the lamp and radio turn on when he presses the mini-controller button. “Well, the first thing I have to do is make the button push on my mini-controller be the IF statement”. He does this by moving the highlight bar onto the ‘IF’ statement and pressing the [Add] button in the ToolBox. A popup menu appeared and he chose ‘X-10 Device State’ since that is the type of device that he wants to use in this Event. After selecting ‘X-10 Device State’, another popup window appeared. Otto chose ‘Switch 1’ from the list and the ‘ON’ radio button. “Now is this what I want?”, Otto thought, “If Switch 1 is ON, yes that’s it”. He presses the [OK] button to accept this choice.



“Now that the ‘IF’ part of my Event is correct, I have to add the Study Lamp and Radio in this somehow”. Otto did this by adding an Action statement the same way he did the IF condition statement, by moving the highlight bar onto the ‘THEN’ statement in the Event, and pressing the [Add] button in the ToolBox.

He chose ‘X-10 Device’ from the ‘THEN Action’ popup window and was put into the X-10 Device Action dialog box.

Otto moves the highlight bar onto the Study Lamp and chose the ON radio button from the list of actions. “This is getting easy”, Otto thought while pressing the [OK] button. The Event is updated with this selection. “Now, all I have to do is add the Radio and I’ll be done”, mused Otto.

Otto again selects the [Add] button in the ToolBox and the THEN Action popup window appears. Otto chose ‘X-10 Device’ and the X-10 Device dialog box appeared. He selects ‘Radio’ by highlighting it in the list box and pressing the ON radio button.

Otto decided that this Event was complete and he wanted to see if it would work. Otto saved the schedule first by selecting the **Schedule | Save As** menu, entering the name “sample” and pressing the [OK] button. To download the schedule into AUTOMATE DOMOTIQUE, Otto selects the **Schedule | Download** menu.

Otto chose ‘[x] Download Schedule’ since he wanted to download his newly created schedule and the ‘[x] Download Device Database’ option. With ‘Download Device Database’ selected, AUTOMATE DOMOTIQUE will be downloaded with the Initial State values that were defined in the Device DataBase. AUTOMATE DOMOTIQUE keeps track of all Devices and whether they are ON or OFF and by downloading the Initial States, you can pre-define an X-10 Device to be ON or OFF. This is normally used for the first download only.

Pressing [OK], the schedule is downloaded and Otto was put back in the Workspace.

Otto, eager to try his new schedule, presses the “B4-ON” button on his mini-controller. This turned on the Study Lamp and Radio. Having created his first Event to turn the on the Study Lamp and Radio, Otto is eager to create another to turn them off.

So Otto goes back to work to define a new Event, one that will turn the Study Lamp and Radio off when the mini-controller switch is turned off. Since he is using X-10 devices that have been defined already, Otto does not have to define any new ones.

Otto decides that this Event will turn the Light and Radio OFF when the mini-controller button “B4-OFF” is pressed. He creates a new Event by pressing [New Event] in the ToolBox. He fills out the Event Definition dialog box and names this Event ‘Study Off’.

When satisfied with his selections, Otto presses the [OK] button to accept the new Event.

“I will make this Event work just like the first one, except replace the ON’s with OFF’s.” He did this by moving the highlight bar onto the ‘if’ statement in the Event and pressing the [Add] button in the ToolBox. A popup menu appears and he chooses ‘X-10 Device’.

The ‘X-10 Device’ dialog box appeared and he selects ‘Switch 1’ from the list of devices and the OFF’ radio button. Otto presses the [OK] button to accept this choice.

Otto adds the Study Lamp and Radio, turning both of them OFF, to the 'then' part of the Event in same manner as he did in the first Event.

Otto decides that the new Event is complete and he wants to try it out. He saves the schedule first by selecting the **Schedule | Save** menu, since the schedule has already been named, Otto saves it under the same name. Otto then selects the **Schedule | DownLoad** menu.

Otto chooses 'Download Schedule' from the DownLoad options but not the 'Download Device Database' option since he did not want to change the internal states in AUTOMATE DOMOTIQUE, as they now reflect the actual states of these devices. Pressing [OK], the schedule is downloaded and Otto is back in the Workspace.

Otto presses the "5-ON" button on his mini-controller, and the Study Lamp and the Radio turns on. He then presses the "5-OFF" button, the Study Lamp and Radio turns off. "This is what it's all about", murmured Otto as he began defining new Events.

Otto is well on his way to an automated home. He has mastered the concept of defining devices in the DataBase and creating a basic IF-THEN Event.

## Creating a Device DataBase

One of the first steps to take before creating a Schedule is to create your Device DataBase. This DataBase contains your X-10 devices (appliance, lamp and remote control types), Timers, Variables and Flags. Once a device has been created it can be used in any Schedule.

### Starting Out

The first place to start would be to make a list of all the X-10 type devices you have in your home or office. Once you have your list, we suggest that you spend the time to enter these devices into the DataBase. It may seem like a lot of work at first, but it will save you a lot of time down the road if you decide to change the X-10 address of your devices.

---

Note Event Manager can only handle 1 Device DataBase, and all Schedules created will use this Device DataBase. If you need to have a different Device DataBase, for example, if you have another home or customer that has different Device needs, create another directory and copy all the files from the 'AUTOMATE DOMOTIQUE' directory.

---

The Define Menu is where all the Devices are defined, including X-10, Timers, Time Labels, Flags, Variables, Macros, IR, I/O and HVAC.

## Define X-10

The **Define | X-10** command will open the X-10 Device List. This box allows you to create, edit and delete X-10 devices in the Device DataBase. An X-10 device can be a lamp or appliance module, an X-10 remote or any device that can send or receive X-10 commands.

### Creating a New X-10 Device

In the **Define | X-10** Device List window, type or select as required for each X10 device:

NAME - Enter the device name to refer to (e.g. Living Rm Light).

DESCRIPTION - Enter a brief device description (e.g. reading light).

LOCATION - Enter the devices location (e.g. Living Room).

ENABLED - Check this box to enable the use of the device in a schedule.

INITIAL STATE - Enter the default state for the device to assume when downloading the device database.

TYPE

LAMP: Dimmer-type modules, X-10 and PCS

APPLIANCE: on/off only type modules

CONTROLLER: Transmitter type devices

LAMP-6381: Leviton 6381 SAN020 models (or equivalent modules that respond to the Extended Code commands).

POWER FAIL CATCHUP - Check this box to force the device into its scheduled state when power fails and is then restored.

REFRESH MODULE - Check this box to periodically issue the X-10 on or off command that corresponds to state currently stored in Automate Domotique's memory.

After completing the list, press [OK] to store the information into the DataBase, [APPLY] to send the options to Automate Domotique's memory, [CANCEL] or <ESC> to return without storing.

---

**Note 1:** Only one X-10 Device can be defined for a HouseCode/UnitCode address. X -10 Device names must be unique, meaning, you cannot use an X -10 Device name more than once.

---

---

**Note 2:** You must select "Download Device Database" when downloading to AUTOMATE DOMOTIQUE for any of the Refresh, Catch-up or Enable options to take effect, OR, press the [APPLY] button to send options without downloading.

---

## Define Timers

AUTOMATE DOMOTIQUE Timers are countdown timers, meaning if you load one with a time, it will start to count down to zero. Timers can be loaded with a value, started and stopped from within a schedule. Each Timer counts down in 1-second intervals and can be loaded with a maximum time of 18:12:16 (18 hours, 12 minutes, 16 seconds).

<u>Menu Item</u>	<u>Description</u>
<i>Name</i>	The Timer name that will be used in the schedule (required)
<i>Description</i>	Brief description of the Timer (optional)

## Define TimeLabels

A Time Label is a time with a descriptive name given to it. An example would be assigning the time 7:00 AM to the name "Wakeup". Your schedule can now refer to "Wakeup" anywhere that 7:00 AM would be used. If you need to change a time that is used often in your schedule, it would be useful to use a Time Label. This way, when you change the time in the Time Label, all references to that label will change.

A more powerful feature of Time Labels is the Time Dependent/offset capability. This capability allows a time to be based upon another time. An example would be assigning a time to be 30 minutes after SunSet and used to turn on exterior lighting. Since SunRise and SunSet are recalculated everyday, this Time Label would always be 30 minutes after SunSet.

<u>Menu Item</u>	<u>Description</u>
Name	Time Label name that will be used in the schedule
Description	Brief description of the Time Label (optional)
Dependent	Select whether this will be dependent upon another time. If YES is selected, a listbox showing all the defined Time Labels and an Offset time field will be shown. If NO is selected, you must fill in the time that this Time Label will refer to.

### Creating a New Time Label

1. In the Time Labels window, select the [New] button. Event Manager opens the Time Label Definition window.
2. Complete the Name and Description fields.
3. Select whether this Time Label will be dependent upon another time by pressing the appropriate YES/NO radio button.

IF YES - dependent on another time

- a) Move the highlight bar onto the Time that this Time Label will be dependent upon
- b) Select whether time will be added or subtracted from the selected Time Label.
- c) Enter the amount of time that will be added or subtracted. The maximum time that can be added or subtracted is 4 hours 15 minutes, (4:15). The offset time combined with the Time Label cannot be greater than 23:59 or less than 00:00, meaning the combined time cannot carry over into the next or previous day. This will not cause an error condition, but the IF statement will never be true.

IF NO - not dependent on another time

- a) Enter the Hour and Minutes and select the days that will be assigned to this Time Label
- b) Select whether this Time Label will use the Security feature.

4. Select the [OK] button to accept your choice and store the Time Label into the Device DataBase, or [CANCEL] to quit without storing.

---

**Note: You can't use the same name for more than one TimeLabel.**

---

### Editing an Existing Time Label

1. In the Define Time Label window, move the highlight bar to the Time Label that is to be edited and select the [EDIT] button.
2. Make changes to the Time Label.

Select the [OK] button to accept your choice and store the Time Label into the Device DataBase, or [CANCEL] to quit without storing.

---

**Note: You will be asked to confirm your choice if you change the name of a Time Label that is used in the current schedule.**

---

### Deleting a Time Label

1. In the Define Time Label window, move the highlight bar to the Time Label that is to be deleted.
2. Select the [DELETE] button.

## Define Flags

A Flag is a variable that has three states: Set, Clear or IDLE. Any Event can set or clear a flag as well as check the state. Flags are useful for communicating between Events or assigning a global variable such as 'Alarm Armed'.

<u>Menu Item</u>	<u>Description</u>
<i>Name</i>	The Flag's name that will be used in the schedule
<i>Description</i>	Brief description of the Flag (optional)
<i>Initial State</i>	This will be the initial state that this flag will be set to in AUTOMATE DOMOTIQUE if the DownLoad Device DataBase option is selected when downloading the schedule.

## Define Variables

A Variable can have a value that ranges from 0 to 255. Variables can be incremented, decremented, loaded with a value and cleared. Variables are useful when you need to base decisions on reoccurring conditions. An example would be to count the number of times the motion sensor at your front door was activated. This would tell you how many people came to your front door.

<u>Menu Item</u>	<u>Description</u>
<i>Name</i>	The Variable's name that will be used in the schedule (required)
<i>Description</i>	Brief description of the Variable (optional)
<i>Initial Value</i>	This will be the initial value that this Variable will be set to in AUTOMATE DOMOTIQUE if the DownLoad Device DataBase option is selected when downloading the schedule.

## Define IF Macros

An IF Macro is a series of IF conditions, and the logic type associated (AND/OR). The IF conditions are entered into the Macro the same way as Events. Each IF Macro can be used in your Schedule any number of times.

IF Macros are useful for when you use the same set of IF conditions in more than one Event. By defining a set of IF conditions as an IF Macro and replacing those repeated conditions, you can reduce your schedule size and make it more readable.

### Example 3 IF Macro named 'Dark Weekdays'

```
MACRO BEGIN
If
  After SunSet .MTWTF.
  or Before SunRise .MTWTF.
MACRO END
```

When an IF Macro is used in an Event, the conditions within the macro must be met for the IF Macro to be true.

```
EVENT: Good Morning
If
  IF MACRO(Dark Weekdays)
Then
  (X:PorchLight A 2) ON
End
```

In this example, if the IF Macro "Dark Weekdays" is TRUE, (that is, if it after SunSet OR before SunRise on weekdays), THEN turn the Porch Light ON.

### Creating a New IF Macro

1. In the Define IF Macro window, select the [New] button. Event Manager opens the IF Macro Definition window.
2. Complete the Name, Description and Logic Type fields.
3. Add IF Conditions by using the ToolBox.
3. Select the [OK] button to accept your choice and store the IF Macro into the Device DataBase, or the [Cancel] button to return without saving.

---

Note **you can't use the same name for more than one IF Macro.**

---

### Editing an Existing IF Macro

1. Highlight the IF Macro that you want to edit and select the [EDIT] button.

2. Change or Add IF Conditions by using the ToolBox.
3. Select the [OK] button to accept your choice and store the IF Macro into the Device DataBase, or the [Cancel] button to return without saving.

### Deleting an IF Macro

1. Highlight the IF Macro that you want to delete.
2. Press the [DELETE] button on your keyboard.

## Define THEN Macros

A THEN Macro is a series of THEN actions. The THEN actions are entered into the Macro the same way THEN and ELSE actions are in the Event Editor. Each THEN Macro can be used in a Schedule any number of times. Then Macros can contain Nested IF/THEN structures and calls to other THEN Macros.

THEN Macros are similar to IF Macros, except they use action statements instead of condition statements. THEN Macros are useful when you use the same set of actions over and over in different Events.

### Example 4 THEN Macro named 'Lights Off'

```
MACRO BEGIN
(X:Study Lamp A 7) OFF
(X:Radio A 12) OFF
MACRO END
```

### Example 5 Event using a THEN Macro

```
EVENT: Good Night
If
  11:00 PM SMTWTFS
Then
  (THEN MACRO:Lights Off)
End
```

In this example, if the time is 11:00 PM on any day, the Study Light and Radio will be turned off.

### Creating a New THEN Macro

1. In the Define THEN Macro window, enter a name for the macro in the name field and then press the EDIT button. Event Manager opens the THEN Macro Definition window.
2. Add THEN Actions by using the ToolBox tools.
3. Select the [OK] button to accept your choice and store the THEN Macro into the Device DataBase.

---

Note you can only have one THEN Macro with a given name.

---

### Editing an Existing THEN Macro

1. In the Define THEN Macro window, move the highlight bar to the THEN Macro that you want to edit and select the [EDIT] button.

### Deleting a THEN Macro

1. Highlight the THEN Macro that you want to delete.
2. Press the [DELETE] button.

## Define IR/IO-Xpander

To define the IR or IO-Xpander, select the desired device and double click or press the Define button and the appropriate IR or IO define screen will be displayed.

To Enable the IR or IO-Xpander to be used by AUTOMATE DOMOTIQUE, select the Enable checkbox next to the device. When the OK button is pressed, the enable information is sent to AUTOMATE DOMOTIQUE and stored in non-volatile memory. AUTOMATE DOMOTIQUE uses this to determine which devices to read and write to.

## Automate Domotique PRO & IO-Xpander Setup

The Define | IO-Xpander | AUTOMATE DOMOTIQUE or Define | IO-Xpander | IO-Xpander command will open the IO Setup Dialog box. When setting up the IO-Xpander, select the address that matches the dip-switch address on the IO-Xpander.

The screenshot shows the IO Setup Dialog box with three main sections: Opto Inputs, Relay Outputs, and Analog Inputs. The Opto Inputs section is divided into two columns of 8 inputs each, with labels like 'Z1-FrontDr' through 'Z16-FmRm PIR'. The Relay Outputs section lists 8 relays with labels like 'Siren', 'Beeper', and 'SB Relay1'. The Analog Inputs section shows 8 inputs labeled 'A/D 1' through 'A/D 8', each with a 'Calibrate' button. On the right side, there are 'OK' and 'Cancel' buttons.

Opto Inputs		Relay Outputs	
Opto 1	Z1-FrontDr	Relay 1	Siren
Opto 2	Z2-Ext Gr Dr	Relay 2	Beeper
Opto 3	Z3-Int Gr Dr	Relay 3	Relay3
Opto 4	Z4-Offic WIn	Relay 4	Relay4
Opto 5	Z5-Slide Dor	Relay 5	Relay5
Opto 6	Z6-FamRm WIn	Relay 6	Relay6
Opto 7	Z7-Kitch WIn	Relay 7	SB Relay1
Opto 8	Z8-DinRm WIn	Relay 8	SB Relay2
Opto 9	Z9-LivRm WIn		
Opto 10	Z10-MsBd WIn		
Opto 11	Z11-MsBdDoor		
Opto 12	Z12-MsBathWIn		
Opto 13	Z13-Bdm1 WIn		
Opto 14	Z14-Bdm2 WIn		
Opto 15			
Opto 16	Z16-FmRm PIR		

Analog Inputs	
A/D 1	AD1
A/D 2	AD2
A/D 3	AD3
A/D 4	AD4
A/D 5	AD5
A/D 6	AD6
A/D 7	AD7
A/D 8	AD8

The dialog box appears allowing you to enter names for each IO connection. Each name corresponds to a connection on the AUTOMATE DOMOTIQUE or IO-Xpander, which has 16 opto-isolated inputs, 8 SPST relays(see appendix for ratings) and 8 8-bit Analog-Digital inputs.

## Analog Inputs

The Analog inputs connect internally to an Analog to Digital Converter that converts analog voltages into a digital representation compatible with AUTOMATE DOMOTIQUE. The A/D converters are 8 bit (range: 0-255) with an input voltage range of 0-5 volts DC. This gives a resolution of approximately 20mV/bit (256 x 20mV = 5V). When AUTOMATE DOMOTIQUE reads an A/D input, it will read a value in the range of 0-255, which represents a voltage from 0-5 applied to the input. The table below shows some typical input voltages and shows what AUTOMATE DOMOTIQUE will read.

<u>Input Voltage</u>	<u>AUTOMATE DOMOTIQUE</u>
0 volt	0
1 volt	51
2.5 volt	128
4 volt	205
5 volt	255

Table 1: Analog Input Voltages

### Calibrating

Calibration can be done through an external gain/offset circuit or done through software. There are tradeoffs using either method, if resolution is important the external gain/offset circuit is preferred, if resolution/accuracy is not as important (there is no general rule of thumb, each application is different and the tradeoffs must be examined on a case by case basis) the software gain/offset may be acceptable.

Lets suppose you are going to measure temperature using an AE1000 Wall plate temperature sensor. The AE1000 temperature sensor output voltage is linearly proportional to the Fahrenheit temperature (10.0 mV/degree F and has a range from +32 to +212 degrees F).

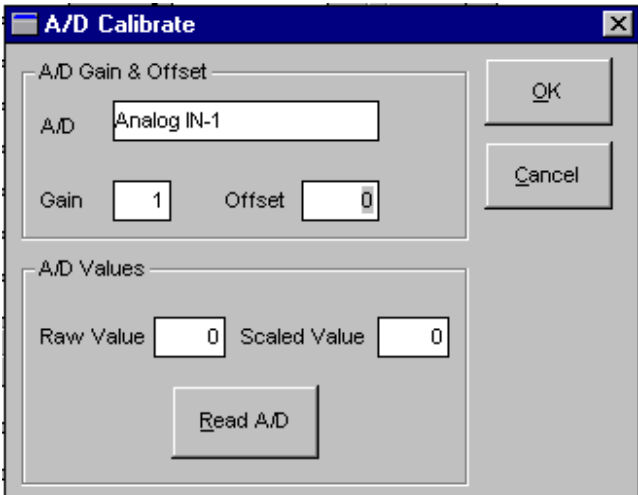
Assume the temperature being measured is 72° F. The LM34D will output 720mV (72° x 10mV/degree). AUTOMATE DOMOTIQUE will read this 720mV and the digital representation will be 36.

A/D resolution-20mV/bit: $720\text{mV} / (20\text{mV/bit}) = 36$
--

So, AUTOMATE DOMOTIQUE reads '36' when the temperature is 72°. It would be nice if the value AUTOMATE DOMOTIQUE read was the same as the temperature. The two ways of doing this could be:

1. Build a 2x amp to convert the 720mV to 1400mV (1400mV / (20mV/bit) = 72)
2. Multiply the value read by AUTOMATE DOMOTIQUE by 2 (36 x 2 = 72), a gain of 2

Option 2 requires the least amount of work, but the resolution of the A/D converter is multiplied by 2 as well, going from 20mV/bit to 40mV/bit. To use the option 2 approach, the gain can be increased by software from within the **Define | IO-Xpander** dialog boxes. Every A/D input can be calibrated with a software gain and offset. The gain will actually multiply the A/D value and the offset will be added to the result. Using the previous AE1000 example, let's say a gain of 2 will give a value of 70 at 72 degrees. It is not 72 as would be expected due to many factors, wiring capacitance, AE1000 accuracy, etc. By specifying an offset of 2, this will bring the value in line with the temperature. The formula for scaled A/D is:



$$\text{scaled\_value} = (\text{raw\_A/D\_value} \times \text{gain}) + \text{offset}$$

If you do not need a gain factor, be sure to set the gain to 1 and offset to 0.

---

**NOTE1:** You may use Define IO any time you add another IO-Xpander, change connections or rename ports. Note that if you do make a change, such as swapping 2 inputs, you will need to re-download the schedule before the changes take effect.

---

---

**NOTE2:** Connect ANALOG GROUND to GROUND when using the on-board 5VDC Power source to power analog devices.

---

# Digital Inputs

When using Digital Inputs, be sure the jumpers are in the correct position for the application.

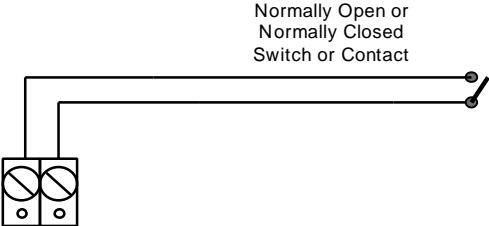


Figure 1: Digital Input

# Relay Outputs

Each Relay Output has three terminals: “NO” (normally open), “NC” (normally closed), and “C” (common). The NO is connected to C when the relay is ON. NC is connected to C when the relay is OFF. In Figure 2: Relay Connections, two relays are used to allow a single-line cordless phone to switch between two different phone lines. The cordless base is normally connected to Line 1 (Relay 1 and Relay 2 de-activated). When Relay 1 and Relay 2 are both activated, it connects to Line 2.

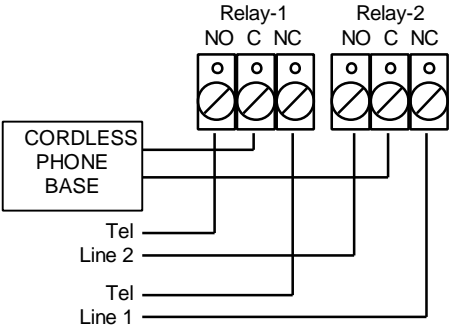


Figure 2: Relay Connections

# Using the Event Editor

## ToolBox

The ToolBox contains functions most frequently used when creating and editing schedules. It is located at the right side of the Event window.

## Creating an Event

### New Event

Selecting the [New] button will bring up the New Event box. You will be able to customize the Event to be an IF/THEN, IF/THEN/ELSE or FAST EVENT type, define the Event's logic type as AND or OR, and insert the new Event before or after the current highlighted event.

### Fast Events

Events triggered by X10 ON/OFF commands or Digital Inputs (AUTOMATE DOMOTIQUE 's) going ON/OFF. These events are executed immediately when triggered regardless of schedule size. Note that there can only be 1 Fast Event for a given trigger.

<u>Menu Item</u>	<u>Description</u>
Name	The name of the Event. This name will appear in the schedule
Event Type	The type of Event that you want to create. IF-THEN, IF-THEN-ELSE or FAST EVENT.
≠ Always	If the Always checkbox is selected, AUTOMATE DOMOTIQUE will always execute the actions if the conditions are met. If not selected, AUTOMATE DOMOTIQUE will not execute any action unless the conditions have changed since the last time the Event was evaluated.
Logic Type	The logic type of the Event, AND or OR.
Insert Point	This will place the new Event above or below the Event that is currently highlighted.

After selecting [OK], an empty Event will be inserted into your schedule.

### Event - Add

You can add IF Conditions or THEN Actions to an Event by moving the highlight bar to where you want the statement to be inserted.

If you want to add an IF statement, move the highlight bar to the IF section of the Event, that is between the 'EVENT' and the 'Then' lines, and press the [ADD] button in the ToolBox. The 'IF Condition' popup menu will appear and by using your mouse or the arrow keys on the keyboard, move to the type of IF Condition you want and press the <Enter> key or click [OK] with your mouse.

To add a THEN statement, move the highlight bar to the THEN or ELSE section of the Event, then press the [ADD] button in the ToolBox. The 'THEN Action' popup menu will appear and by using your mouse or the arrow keys on the keyboard, move to the type of Action you want and press the <Enter> key or click with your mouse.

### Event - Edit

To Edit an Event (IF Condition or THEN/ELSE Action), move the highlight bar to the item to be edited and select the Toolbox [Edit] button (or double-click the left mouse button on the line to be edited). A dialog box with the information from that line will appear and allow you to edit it.

## Event - Delete

To Delete an IF Condition or THEN/ELSE Action, move the highlight bar to the item you want to delete and select the Toolbox [Delete] button.

## Editing an Event

To modify an Event, move the highlight bar to the Event Name, and select the [EDIT] button in the ToolBox (or double click the left mouse button). The Event Definition box will appear with the name, event type and logic type fields filled in. When you are done with your changes, press the [OK] button to save. By pressing the <ESC> key or the [Cancel] button, any changes are discarded.

---

**Note when changing from an IF-THEN-ELSE type Event to an IF-THEN type Event, all of the actions after the ELSE statement must be deleted before it can be changed**

---

## Deleting an Event

To delete an Event, place the highlight bar on the Event Name and select the [Delete] button in the ToolBox.

## IF Conditions

An Event uses IF Conditions to decide whether to do the THEN or ELSE actions. IF Conditions can be based on time, date, sunrise/sunset, state of an X-10 device, received X10 sequence, received infrared, timers, variables, flags, digital inputs, analog inputs, relay outputs, ASCII input and system variables (first schedule pass, X10 loss, ac power loss, power restored).

To add an IF Condition to an Event, move the highlight bar in the IF section of the Event and select the [ADD] Toolbox button. A pop-up menu will appear allowing you to choose the type of IF condition. Select what type of IF Condition you want with the mouse. A dialog box will appear and allow you to fill in the information for the IF Condition that was chosen.

### X-10 Device State

Selecting X-10 Device State from the menu will open the X-10 Device Pick box. This IF condition will be TRUE if the state of the X-10 Device is the same as the state chosen from the dialog box. After completing the form, press [OK] to enter the new information into the schedule, [ADD] to enter the new information and return to the X10 Device pick box for more entries, or the [CANCEL] to escape without saving anything.

*What is it* AUTOMATE DOMOTIQUE monitors the Powerline and as X-10 commands are received, it updates its internal state table of all 256 X-10 devices. The three states that AUTOMATE DOMOTIQUE keeps track of are ON, OFF and IDLE. You can compare the state of any X-10 device to trigger an Event.

*How Used* When used in the schedule, AUTOMATE DOMOTIQUE will compare the state of the X-10 device stored in AUTOMATE DOMOTIQUE, against the state chosen in the dialog box. If the states match, this IF statement will be true.

<u>Menu Choices</u>	<u>Description</u>
ON	If the device chosen is 'ON', this statement will be true.
OFF	If the device chosen is 'OFF', this statement will be true.
IDLE	If the device selected is in 'IDLE' mode, this statement will be true.
NOT OFF	This condition will be true if the specified module (house and unit code) is either ON or IDLE. It will be false if the module is OFF.
NOT ON	This condition will be true if the specified module (house and unit code) is either OFF or IDLE. It will be false if the module is ON.
NOT IDLE	This condition will be true if the specified module (house and unit code) is either ON or OFF. It will be false if the module is IDLE.
Enabled	This condition will be true if the specified module (house and unit code) is ENABLED in the DEFINE-X10 <b>DEVICE database</b> . It will be false if the module is DISABLED.
Disabled	This condition will be true if the specified module (house and unit code) is DISABLED in the DEFINE-X10 <b>DEVICE database</b> . It will be false if the module is ENABLED.
DimLevel ==##	This condition will be true if the specified module's (house and unit code) current level (0 to 10) is equal to ## (specified number). It will be false if not.
DimLevel <= ##	This condition will be true if the specified module's (house and unit code) current level (0 to 10) is less than or equal to ## (specified number). It will be false if the level is greater than ##.
DimLevel >= ##	This condition will be true if the specified module's (house and unit code) current level (0 to 10) is greater than or equal to ##. It will be false if the level is less than ##.
PresetLevel ==##	This condition will be true if the specified module's (house and unit code) Preset level (1 to 31) is equal to ## (specified number). It will be false if not.
PresetLevel <=##	This condition will be true if the specified module's (house and unit code) Preset level (1 to 31) is less than or equal to ## (specified number). It will be false if not.
PresetLevel >=##	This condition will be true if the specified module's (house and unit code) Preset level (1 to 31) is greater than or equal to ## (specified number). It will be false if not.

## What is the IDLE State:

AUTOMATE DOMOTIQUE keeps track of the current state of all 256 X-10 devices in a place called a state table. The device state can be ON, OFF, or IDLE. A visual readout of the state table is provided by the MegaController display.

The ON or OFF state is obvious, but what is this IDLE state, and why is it needed? It can't be sent or received on the power line, it isn't part of the X-10 modules or controllers, and it only exists inside the AUTOMATE DOMOTIQUE, yet it's extremely important and useful.

In concept, IDLE is neither ON nor OFF, but more like an "available for use" or "ready to go" state. The nature of X-10 and some practical uses make it an ideal solution for a large number of situations.

When the AUTOMATE DOMOTIQUE passes through your schedule, one primary job it has is to look for a change in the states of the X-10 devices. If it sees a change, it does whatever you told it to do. If nothing has changed, it ignores that scene or event and continues on. If it didn't act only on change of state, it would be sending out commands all the time.

Suppose you have the 8 button wireless remote control and the plug-in base receiver set for the M HouseCode. You decide that when button 5 is pressed on or off, you want the study light and the fireplace spotlight to turn on or off. They're both controlled by wall switches across the room, one assigned A-7, and one assigned G-3 (doesn't matter what they are assigned to!).

Easy to program into the AUTOMATE DOMOTIQUE. Basically, you put it in like this:

```
EVENT Sample On
If
  (X: Switch 1 M-5) is ON
Then
  (X: Study Light A-7) ON
  (X: Hallway Light A-2) ON
End

EVENT Sample Off
If
  (X: Switch 1 M-5) is OFF
Then
  (X: Study Light A-7) OFF
  (X: Hallway Light A-2) OFF
End
```

Fine. Flows logically, easy to setup. You push button M-5 to ON, and they both turn on. You push M-5 to OFF, and they both turn off. How is the AUTOMATE DOMOTIQUE interpreting this? It received M-5 ON, from your wireless controller, which was a change to the state of M-5, so it rolled along turning on the lights you assigned on the other codes. The AUTOMATE DOMOTIQUE passes through the schedule around many times a second, watching for a change to the state of M-5. The next pass through your schedule, it checked M-5 for its current state (ON). Until it sees M-5 change, it doesn't try to turn on the lights again.

Now to turn the lights off. You push button M-5 to OFF, and they both turn off. When you sent M-5 OFF, the AUTOMATE DOMOTIQUE received it and saw the change in the state of M-5, so it turned off both lights. Next time through the schedule, it left everything alone.

So, it works the way you expect. What's the problem? Where's that IDLE state stuff come in? Let's throw in a typical monkey wrench. Your four-year old boy zips in while you're still sitting there and punches the wall switch for the study light, flipping it off manually. You push the button M-5 ON on your controller like you did originally, but this time the lights don't come on. Nothing happens. You try pushing it ON again a couple times, still nothing. You push it OFF, and now the remaining light goes off. Now you push M-5 ON again, and finally both lights go ON. What's going on here?

A limitation of X-10 devices is that most are one-way.. which means they can't notify the AUTOMATE DOMOTIQUE when they are turned on or off manually! The AUTOMATE DOMOTIQUE was still watching for a change to the state of M-5 (ON, in the example). When you pressed M-5 ON to flip the light back on that your child turned off manually, the AUTOMATE DOMOTIQUE checked M-5, found it set to ON already, so it didn't try to turn on the lights again. Not until you pushed it off, changing the state, did it act on it.

So why not have AUTOMATE DOMOTIQUE always act on M-5 ON, every pass through the schedule, instead of watching for the change in its state? In this example, it would then send an 'ON' command to the two lights, constantly, every pass through the schedule. You wouldn't be able to turn off the lights manually, not to mention the power line tied up with constant X-10 commands.

You could do some clever programming, setting flags and such, to get around this X-10 limitation, but it would be complicated quite a bit. Enter the IDLE state. If you could set the M-5 button to IDLE, which is neither ON nor OFF, it would then be available for use. A push of M-5 ON at any time, (like after the child turned off the wall switch manually) would then be a change in the state of M-5 (from IDLE to ON) and the AUTOMATE DOMOTIQUE would re-send the commands to turn the lights on.

Let's rewrite the example to set the state of M-5 to IDLE after each push:

```
EVENT Sample On
If
  (X: Switch 1 M-5) is ON
Then
  (X: Study Light A-7) ON
  (X: Hallway Light A-2) ON
  (X: Switch 1 M-5) Idle
End
```

```
EVENT Sample Off
If
  (X: Switch 1 M-5) is OFF
Then
  (X: Study Light A-7) OFF
  (X: Hallway Light A-2) OFF
  (X: Switch 1 M-5) Idle
End
```

Now each time that you push M-5 on your wireless controller, AUTOMATE DOMOTIQUE re-sends the ON or OFF commands to your lights, even if they have been turned on or off manually. Since your event always sets the M-5 to IDLE state after each time you push the button, any M-5 ON or OFF code coming in is a change to the M-5 state, so AUTOMATE DOMOTIQUE will trigger the event.

You will find having the ability to set switches (such as M-5 in the example) and devices to the IDLE state (making them available to be triggered), will make writing events into your schedule much easier than the fancy programming necessary to otherwise cope with X-10 limitations.

Another way to write this example would be to use the X-10 Sequence. When an Event is using an X-10 Sequence, it is waiting for an exact sequence of X-10 Commands on the Powerline, and they must happen within a certain amount of time.

Using X-10 Sequences in the previous example, the IDLE state is not needed. This is because the Event is looking for a sequence of X-10 commands, not a state change, so there is no need to change the state of anything.

Let's rewrite the example to look for a sequence instead of a state change:

```
EVENT Sample On
If
  (XSEQ: M-5 M-ON) received within 4 seconds
Then
  (X: Study Light A-7) ON
  (X: Hallway Light A-2) ON
End
```

```
EVENT Sample Off
If
  (XSEQ: M-5 M-OFF) received within 4 seconds
Then
  (X: Study Light A-7) OFF
  (X: Hallway Light A-2) OFF
End
```

Now each time that you push M-5 (sending M-5 M-ON) on your wireless controller, AUTOMATE DOMOTIQUE sees the sequence and re-sends the ON commands to your lights, even if they have been turned on or off manually.

### **X-10 State vs. X-10 Sequence**

**X-10 State:** The present status, ON/OFF/Idle, of the X-10 device at the time AUTOMATE DOMOTIQUE is looking at it in a schedule.

**X-10 Sequence:** A series of any valid X-10 transmissions, either HouseCode/UnitCode or HouseCode/FunctionCode, that AUTOMATE DOMOTIQUE receives.

## X-10 Sequence

Selecting X-10 Sequence from the menu will open the X-10 Sequence Box. This IF condition will be TRUE if AUTOMATE DOMOTIQUE receives or transmits the X-10 Command sequence, in the exact order and within the time window that you specify in the dialog box. After completing the form, press the [OK] button to enter the new information into the schedule, or [CANCEL] to return without saving.

*What is it* AUTOMATE DOMOTIQUE monitors the Powerline and compares received only, transmitted only, or either received/transmitted commands on the Powerline with the command(s) that you specify in the X10 Sequence box. A command sequence can consist of up to 6 X-10 commands and a time window that they must occur in. An X-10 command sequence can consist of any X-10 commands, A1, C5, P-ON, F-OFF, D-ALL UNITS OFF, etc.

*How Used* When used in the schedule, AUTOMATE DOMOTIQUE will monitor the Powerline and if the X-10 commands AUTOMATE DOMOTIQUE receives are the same as those you have specified, and they occur within the time window, this statement will be TRUE.

<u>Menu Choices</u>	<u>Description</u>
HouseCode	The HouseCode used in the command
UnitCode	The UnitCode used in the command if the UnitCode radio button is chosen
UnitCode	Select a UnitCode command
ON Command	Select the ON command
OFF Command	Select the OFF command
Dim Command	Select the DIM command
Bright Command	Select the BRIGHT command
All Lights ON	Select the All Lights ON command
All Lights OFF	Select the All Lights OFF command
All Units OFF	Select the All Units OFF command
Preset Command	Select the Preset command and a preset level
Time Window	The Time frame that the commands must occur in. Note that each X-10 command takes approximately 1 second to send if sent with no delay in-between, so be sure to allow enough time for all of the commands to be seen in the Time Window
[Add]	This will add a command to the X-10 Sequence list where the highlight bar is positioned
[Replace]	This will replace a command in the X-10 Sequence list where the highlight bar is positioned with selections made
[Delete]	This will delete the command that is highlighted in the list box
[OK]	This will accept the choices made and add to the schedule
[Cancel]	This will exit the X-10 Sequence dialog box without adding or modifying the schedule

Example: Using 1 UnitCode to control 4 different lights.

```
EVENT: lights 1
If
(XSEQ: A-1 A-OFF A-1 A-OFF) Received within 4 seconds
Then
(X:Lamp 1 B 1) ON
End
```

```
EVENT: lights 2
If
(XSEQ: A-1 A-OFF A-1 A-ON) Received within 4 seconds
```

```

Then
(X:Lamp 2 B 2) ON
End

```

```

EVENT: lights 3
If
(XSEQ: A-1 A-ON A-1 A-OFF) Received within 4 seconds
Then
(X:Lamp 3 B 3) ON
End

```

```

EVENT: lights 4
If
(XSEQ: A-1 A-ON A-1 A-ON) Received within 4 seconds
Then
(X:Lamp 4 B 4) ON
End

```

## If Timer

What is it

These are the Timers that you have defined in the **Device DataBase** for use in your schedule. Timers are countdown timers, meaning, once a timer is loaded, it will decrement every second until it reaches zero (00:00:00), or is stopped by an Event. The maximum amount of time that can be loaded into a Timer is 18 hours, 12 minutes, 16 seconds (18:12:16). Once the Timer has been loaded, it will start counting down to zero (00:00:00).

There are 4 states that a Timer can be in:

**Expiring:** A Timer is Expiring when it changes from 00:00:01 to 00:00:00. The Timer will stay in the Expiring state for one complete pass through your Schedule, then change to the Stopped state.

**Running:** While a Timer is counting down, it is in the Running state.

**Not Running:** While a Timer is not counting down (opposite of Running).

**Stopped:** A Timer can get into the Stopped state 1 of 2 ways. 1) The Timer can be stopped using the Timer Stop Action in an Event, or 2) After the Timer reaches the Expiring state, it goes into the Stopped state.

**Cleared:** After every Schedule download, all Timers are put into the 'Cleared' state. *Note that this is different from the 'Stopped' state, it cannot be tested for in an Event.* Timers will stay in the 'Cleared' state until an Event changes its state. It may be necessary to create an 'Initialization Event' that after a download, puts the Timers into a state other than 'Cleared'.

Example:

```

EVENT: Initialization Event
If
(X: N-16) is ON
or (X: N-16) is OFF
Then
(T:HallwayLt) STOP
End

```

Example: Timer is loaded with 15 seconds

<u>Timer Value</u>	<u>Timer State</u>
00:00:00	Stopped
00:00:15	Running (just loaded with 15 seconds)
00:00:14	Running
...	
00:00:01	Running
00:00:00	Expiring (Timer stays in this state for 1 pass through schedule)
00:00:00	Stopped

How Used

Timers can be used in an Event to provide 1-second resolution timed events. The Timers can be stopped, started, cleared or loaded with a new countdown time at any time.

<u>Menu Choices</u>	<u>Description</u>
Expiring	If the Timer is Expiring (the Timer counts down to 00:00:00), this IF statement will be true.
Running	If the Timer is running, this IF statement will be true.
Not Running	If the Timer is NOT running, this IF statement will be true.
Stopped	If the Timer has been stopped, this IF statement will be true.

Example:

```

EVENT: Hallway Motion
If
(XSEQ: A-14 A-ON) Received within 4 seconds
Then
(T:HallwayLt) Load 0:02:00
(X:Hall Light) ON
End

```

```

EVENT: Hallway Turn OFF
If
(T:HallwayLt) is Expiring
Then
(X:Hall Light) OFF
End

```

In this example, when motion is detected in the hallway, the X-10 command A-14 A-ON is sent. When AUTOMATE DOMOTIQUE receives this command, the "HallwayLt" timer gets loaded with 2 minutes and the hallway light turns ON (in EVENT "Hallway Motion"). When the timer reaches 0:00:00 (Expiring), the second EVENT "Hallway Turn OFF" will turn the hallway light OFF.

---

Note Timers are re-triggerable, that is, while they are running, a new load value can be loaded into the timer. In the previous example, if the timer had counted down to say, 10 seconds, and there was motion in the hallway again causing the A -14 A-ON command to be sent again, the "HallwayLt" timer would be reloaded with 2 minutes

---

## If Flag

*What is it* Flags are variables that have 3 states, Set , Clear or IDLE. Events can use Flags to communicate with each other.

*How Used* When used in the schedule, AUTOMATE DOMOTIQUE will check the state of the Flag and compare it to that specified.

<u>Menu Choices</u>	<u>Description</u>
Set	If the Flag's state is Set, this IF statement will be true
Clear	If the Flag's state is Clear, this IF statement will be true
IDLE	If the Flag's state is IDLE, this IF statement will be true
Not Set	If the Flag's state is NOT Set, this IF statement will be true
Not Clear	If the Flag's state is NOT Clear, this IF statement will be true
Not IDLE	If the Flag's state is NOT IDLE, this IF statement will be true

### Example: Tracking System

```
EVENT: Tracking 1
If
(X:Hall Motion A-14) is ON
Then
(F:Hallway Track) SET
End

EVENT: Tracking 2
If
/* going from hallway to study */
(X:Study Motion) is ON
and (F:Hallway Track) is SET
Then
(X:Hall Light) OFF
(X:Study Light) ON
(F:Hallway Track) CLEAR
(F:Study Track) SET
End

EVENT: Tracking 3
If
/* going from study to hallway */
(X:Hall Motion A-14) is ON
and (F:Study Track) is SET
Then
(X:Study Light) OFF
(X:Hall Light) ON
(F:Study Track) CLEAR
(F:Hallway Track) SET
End
```

In the tracking example above, flags are used to keep track of the last room that was occupied. Using motion detectors and keeping track of the last room that was occupied (with flags), a sophisticated tracking system can be developed that will turn the lights on in the room that you walk into, as well as turn off the lights in the room you were just in.

## If Variable

*What is it* Variable values can range anywhere from 0 to 255. The Variable can be compared against a value, A/D Input, HVAC temperature or SetPoint, or another Variable and used to trigger an Event.

*How Used* When used in the schedule, the Variable will be compared against the type that you specify.

### **Compare Options**

Equal to	Variable is equal to
Less than	Variable is less than
Greater than	Variable is greater than
Less than/Equal to	Variable is less than or equal to
Greater than/Equal to	Variable is greater than or equal to
Not Equal to	Variable is not equal to
Changes Value	This condition will be true if the value changes since the last schedule pass.
Increases in Value	This condition will be true if the value has increased since the last schedule pass
Decreases in Value	This condition will be true if the value has decreased since the last schedule pass
Bits 0-7 Set	These conditions check to determine if the specified bit is set (has a value of one). Variables/Analog Inputs/HVAC values are stored as 8-bit numbers ranging from 0 to 255. Bit 0 is the least significant bit (LSB) and bit 7 is the most significant bit (MSB). Here are some examples:  If the variable = 0(decimal) (00000000b), no bits are set. If the variable = 8(decimal) (00001000b), only bit 3 is set. If the variable = 6(decimal) (00000110b), bits 1, and 2 are set. If the variable = 192(decimal) (11000000b), bits 7 and 6 are set.
Bits 0-7 Not Set	These conditions check to determine if the specified bit is NOT set (has a value of zero). Variables /Analog Inputs/HVAC values are stored as 8-bit numbers ranging from 0 to 255. Bit 0 is the least significant bit (LSB) and bit 7 is the most significant bit (MSB).

### **Compare Against**

Value	If selected, the Variable highlighted in the listbox will be compared against a value that can range from 0 to 255 (see picture above).
Analog Input	If selected, the Variable highlighted in the listbox will be compared against an Analog Input shown in the listbox to the right.
Variable	If selected, the Variable highlighted in the listbox will be compared against a Variable picked from the listbox to the right.
HVAC	If selected, the Variable highlighted in the listbox will be compared against an HVAC value shown in the listbox to the right.

## **IF Macro**

<i>What is it</i>	An IF Macro is a set of IF Conditions that has a name (like an Event with no THEN actions) and can be used multiple times in a Schedule. Each IF Macro has a logic type associated with it, similar to the logic type of an Event. If the logic type is AND, then all of the conditions must be true for the IF Macro to be true. If the logic type is OR, the only 1 of the conditions needs to be true for the IF Macro to be true.
<i>How Used</i>	When used in the schedule, AUTOMATE DOMOTIQUE will evaluate all of the IF Conditions in the IF Macro. If the conditions meet the requirements of the IF Macro (AND/OR), the IF Macro statement will be true.

### **Example 6 IF Macro Example: Gone@Night**

```
IF MACRO:  
If  
  (X:Alarm Armed) is ON  
  and After SunSet SMTWTFS  
End
```

### **Example 7 Using IF Macro “Away at Night”**

```

EVENT: Random Lights1
If
  (IF MACRO:Gone@Night)
  and Time is 8:30 PM SMTWRFS Security Mode
Then
  (X:Kitchen Lights) ON
End

```

```

EVENT: Random Lights2
If
  (IF MACRO:Gone@Night)
  and Time is 9:30 PM SMTWRFS Security Mode
Then
  (X:Dining Lights) ON
End

```

In the examples above, an IF MACRO was used by both Events to check if the Alarm is Armed and if it is dark outside. Once you define an IF MACRO, you may use it in any Event, any number of times.

## If Comment

*What is it* A Comment can be a description or a note. It does not affect the way the Event works in any way.

*How Used* When used in the schedule, a Comment can add some description of what the Event is doing. A Comment can be placed anywhere within the Event, but not between Events.

## If Time

*What is it* A Time condition is a time that you want something to happen.

*How Used* When used in the schedule, AUTOMATE DOMOTIQUE will compare the current time of day to the time you choose. If the times match, the IF statement will be TRUE.

<u>Menu Choices</u>	<u>Description</u>
Equal to	If the “Equal to” radio button is pressed, the current time must be equal to the time you have entered and match the days you chose in order to be considered true.
Before	If the “Before” radio button is pressed, the current time must be <b>AFTER Midnight and BEFORE the specified time</b> , and match the days you chose, in order to be considered true.
After	If the “After” radio button is pressed, the current time must be <b>AFTER the specified time and BEFORE Midnight</b> (11:59:59 PM), and match the days you chose, in order to be considered true.
Days	By selecting the checkbox next to the days, you can specify the day(s) this condition must occur.
* <input type="checkbox"/> Security Mode	Security Mode will add or subtract a random amount of time from the time entered. Every day a new random number is generated and added to the time entered. This feature is useful to make lights go on or off at random times to give a more ‘lived in’ look.

Automate Domotique’s day begins at midnight and ends at 11:59 PM. If you are using an IF statement such as ‘Time is after 8:00 PM’, it will be true from 8:00 PM until midnight (when Automate Domotique’s day ends).

As an example, Otto would like to turn his outdoor lights on when he presses the button on his mini-controller, but only if it is at night (after 8:00PM for this example).

```

EVENT Outdoor lights
If
  Time is After 8:00 PM SMTWTFS
  and (X:minibutton) is ON
Then
  (X:Outdoorlghts) ON
End

```

This is fine until Otto stays up after midnight one evening. Once the time is after midnight (11:59 PM), he could not turn his lights on. He solved this by adding another Time condition to his Event.

```

EVENT Outdoor lights
If
  Time is After 8:00 PM SMTWTFS
  or Time is Before 6:00 AM SMTWTFS
-AND-
(X:minibutton) is ON
Then
  (X:Outdoorlgs) ON
End

```

Now, if it is after 8pm or before 6am, and Otto presses the button, his light will turn on.

---

**NOTE: You must use or logic when times cross over midnight to the next day.**

---

## If Time Label

*What is it* A Time Label is a time that has descriptive name. It can be used to give a meaningful name to a particular time.

Example: “Wakeup” could mean 5:45 AM . MTWTF .

“Dusk” could mean 30 minutes after SunSet

*How Used* When used in a schedule, the current time of day will be compared to the time in the Time Label. If the times meet the requirements that have been entered into the Time Label, the IF statement will be TRUE.

<u>Menu Choices</u>	<u>Description</u>
Equal To	The current time and day must EQUAL the TimeLabels time and day exactly.
Before	If selected, the current time must be <b>AFTER Midnight</b> and <b>BEFORE the TimeLabels time</b> and the days must match.
After	If selected, the current time must be <b>AFTER the TimeLabels time</b> and <b>BEFORE Midnight</b> and the days must match.

## If Date

*What is it* Dates are a particular Month and Day. They are used to control an Event’s actions to a particular day of the year, or a range of days. An example would be changing heating and cooling patterns based on the seasons.

*How Used* When used in the schedule, AUTOMATE DOMOTIQUE will compare the current date against the month and day that you have specified into your schedule.

<u>Menu Choices</u>	<u>Description</u>
Equal To Date	When the current date becomes <b>EQUAL</b> to the date specified, this IF statement will be TRUE.
Before Date	When the current date is <b>AFTER January 1st</b> <u>and</u> <b>BEFORE the specified date</b> , this IF statement will be TRUE, otherwise it is FALSE.
After Date	When the current date is <b>AFTER the specified date</b> <u>and</u> <b>BEFORE January 1st</b> , this IF statement will be TRUE, otherwise it is FALSE.
Even Days	Condition is true if the current day of the month is an even number (2,4,6, etc.).
Odd Days	Condition is true if the current day of the month is an odd number (1,3,5, etc.).
Season – Spring	Condition is true if the current date is between March 20 and June 20.

Season – Summer	Condition is true if the current date is between June 21 and September 21.
Season – Fall	Condition is true if the current date is between September 22 and December 20.
Season – Winter	Condition is true if the current date is between December 21 and March 19.
AM	Condition is true if current time is between 12:00 AM (midnight) and 11:59 AM.
PM	Condition is true if current time is between 12:00 PM (noon) and 11:59 PM.
Daytime	Condition is true if current time is between 6:00 AM and 5:59 PM.
Nighttime	Condition is true if current time is between 6:00 PM and 5:59 AM.
Light	Condition is true if current time is after sunrise and before sunset.
Dark	Condition is true if current time is after sunset and before sunrise.

As an example, Otto would like his Christmas lights to come on at 6:00 PM everyday if it's after December 15th.

```

EVENT Christmaslights
If
  Date is After Dec 15
  and Time is 6:00 PM SMTWTFS
Then
  (X:Christmaslghts) ON
End

```

The Christmas lights would be turned on at 6:00 PM everyday as long as it is after December 15th. When the date becomes January 1st, the lights would not be turned on since this is the start of another year.

If Otto wanted to have his lights come on from December 15th - January 5th, his Event would look like this:

```

EVENT Christmaslights
If
  Date is After Dec 15
  or Date is Before Jan 5
-AND-
  Time is 6:00 PM SMTWTFS
Then
  (X:Christmaslghts) ON
End

```

---

**NOTE: You must use or logic when dates cross over to the next year.**

---

## If SunRise/SunSet

Selecting SunRise/SunSet from the menu will open the SunRise/SunSet box. You can choose to have this IF condition be TRUE if the current time is Equal to, Before or After SunRise or SunSet on a particular day. After completing the form, press the [OK] button to enter the new information into the schedule, or the [CANCEL] to return without saving anything.

*What is it*                      Everyday at midnight, AUTOMATE DOMOTIQUE re-calculates the SunRise and SunSet times, based on your location. Your schedule can use these times to control Events that you want to be based on SunRise or SunSet times. The calculated SunRise and SunSet times has an accuracy of plus or minus 10 minutes from the true SunRise or SunSet.

*How Used*                        When used in the schedule, AUTOMATE DOMOTIQUE will compare it's current time to the calculated SunRise or SunSet time and also compare the current day of the week.

<u>Menu Choices</u>	<u>Description</u>
Equal To	If the current time is EQUAL to the SunRise or SunSet time on the day(s) selected, this IF statement will be true.
Before	If the current time is <b>AFTER Midnight</b> <u>and</u> <b>BEFORE the SunRise or SunSet time</b> on the day(s) selected, this IF statement will be true.

After	If the current time is <b>AFTER the SunRise or SunSet time</b> <u>and</u> <b>BEFORE Midnight</b> on the day(s) selected, this IF statement will be true.
SunRise	If selected, AUTOMATE DOMOTIQUE will use the calculated SunRise time in this statement.
SunSet	If selected, AUTOMATE DOMOTIQUE will use the calculated SunSet time in this statement.
☞ Security Mode	When selected, AUTOMATE DOMOTIQUE will add the security offset to the SunRise or SunSet time. This will change the SunRise/SunSet time by adding/subtracting the Security Offset to the time.

---

Note: **For SunRise/SunSet calculations to be accurate, the Longitude, Latitude and Time Zone information must be correct.**

---

## If ASCII In

*What is it* ASCII text data can be sent to AUTOMATE DOMOTIQUE and used to trigger an Event. The ASCII text can be up to 32 characters in length and must be terminated with a carriage return.

*How Used* The ASCII text sent to AUTOMATE DOMOTIQUE can **match exactly** (upper/lower case, spaces, etc.), match a range of characters or test for a number of characters. Programs other than Event Manager can send ASCII text to AUTOMATE DOMOTIQUE to trigger Events. Select the AUTOMATE DOMOTIQUE COM port (“Source”) which will receive the ASCII data.

<u>Menu Choices</u>	<u>Description</u>
Input Data Match	The ASCII input string must <b>match exactly</b> (upper/lower case, spaces, etc.) the ASCII In statement
Input Data Range Match	This condition is used to compare the input string or a portion of it to certain characters. Example: Match ‘ZZZZZ’ starting at char X The symbol meanings are: X refers to the location in the string of the first character to compare (i.e., the character number). ZZZZZZZ are the characters to compare the received data to. The condition is true if all characters match exactly, false is any do not match.
Number of characters received equals ##	Condition is true if the number of characters received (serial string length) is equal to the value.
Number of characters received is less than ##	Condition is true if the number of characters received (serial string length) is less than or equal to the value.
Number of characters received is greater than ##	Condition is true if the number of characters received (serial string length) is greater than or equal to the value.

### Example 8 ASCII In

```

EVENT: ASCII Input Example
If
  ASCII-In: 'Hello Otto']
Then
  (X:Study Light A7) ON
End

```

In the previous example, when the ASCII text 'Hello Otto' is sent to AUTOMATE DOMOTIQUE, it will trigger the Event to turn the Study Light ON.

2) Suppose an alarm system sends ASCII text messages for its alarm states. Typical messages the alarm would send are:

- Alarm Violation
- Alarm Armed
- Alarm Ready

To keep track of Alarm states, ASCII In conditions are used.

#### Example 9 ASCII In

```
EVENT: Alarm Status
If
  ASCII-In: Match 'Alarm' starting at character number 1
Then
  /-If
  | ASCII-In: Match 'Armed' starting at character number 7
  /Then
  | "Armed state == 1 "
  | (V:Alarm State) LOAD with 1
  /-End
  /-If
  | ASCII-In: Match 'DisArmed' starting at character number 7
  /Then
  | "Disarmed state == 2 "
  | (V:Alarm State) LOAD with 2
  /-End
  /-If
  | ASCII-In: Match 'Violated' starting at character number 7
  /Then
  | "Violated state == 3 "
  | (V:Alarm State) LOAD with 3
  /-End
End
```

3) Suppose you have a weather station that reports the current temperature in the following format:

Temp = 85 degrees

To match the string and convert the value to a variable the following event could be used.

#### Example 10 ASCII In

```
EVENT: Convert Temperature
If
  ASCII-In: Match 'Temp = ' starting at character number 1
Then
  Put value of received char #8-9 into user_VAR
  (V:Temperature) load with user_VAR
End
```

---

**Note:** The serial port of AUTOMATE DOMOTIQUE will not echo any ASCII text that is sent to it. The ASCII text input to AUTOMATE DOMOTIQUE must be terminated with a carriage return (linefeeds are not needed).

---

## AND Statement

Selecting AND Statement from the menu will add an AND statement to the Event.

*What is it*                      AND statements are used in OR type Events.

*How Used* You can use the AND statement to create compound OR/AND type Events.

### Example 11 AND Statement

```
EVENT: OR/AND Example
If
  (X:P1 ) is ON
  or (X: P2 ) is ON
-AND-
  (X:P3 ) is ON
  or (X: P4 ) is ON
Then
  (X: B7) ON
End
```

In the previous OR/AND example, if either P1 or P2 is ON, AND, if either P3 or P4 is ON, then turn B7 ON.

## OR Statement

Selecting OR Statement from the menu will add an OR statement to the Event.

*What is it* OR statements are used in AND type Events.

*How Used* You can use the OR statement to create compound AND/OR type Events.

### Example 12 OR Statement

```
EVENT: OR/AND Example
If
  (X:P1 ) is ON
  and (X: P2 ) is ON
-OR-
  (X:P3 ) is ON
  and (X: P4 ) is ON
Then
  (X: B7) ON
End
```

In the previous AND/OR example, if P1 and P2 is ON, OR, if P3 and P4 is ON, then turn B7 ON.

## If System Variables

*What is it* System Variables are variables internal to AUTOMATE DOMOTIQUE that can be used in Schedules.

*How Used* The System Variables can be used to trigger an Event

<u>Menu Choices</u>	<u>Description</u>
Power-Restore	This variable is set after power is restored after a power failure. It will be set for one pass through the Schedule, then it will be cleared. You may want to use this variable to force certain devices to a known state after power comes back on.
First Pass	This variable is for the first pass through a Schedule after a DownLoad. You may want to use this variable to force certain devices to a known state after a new DownLoad.
X10 Signal Loss	This variable is set when the X10 zero cross signal is not received. This can occur if the TW523 PLI is unplugged or if the AC power powering the TW523 goes out. This variable could be used to detect a power failure if running on battery backup.

### Example 13 Power Restore

```
EVENT: Power Restore Example
If
  Power-Failure
```

```

Then
  /* Reset critical Devices */
  (X:Hot Tub B-5) OFF
  (X:Sprinklers D-1) OFF
End

```

EVENT: First Pass Example

```

If
  First Pass
Then
  /* Setup Certain Devices */
  (F:Security Active) OFF
  (X:Modem M-1) ON
End

```

EVENT: X10 Loss Example

```

If
  X10 Loss
Then
  LOG ' AC Power Loss'
End

```

## If Digital Input

Digital Inputs are 'ON' when sufficient voltage (4 - 24v ac or dc) is applied between the two inputs.

*How Used* When used in a schedule, AUTOMATE DOMOTIQUE will compare If the condition is met, the IF statement will be TRUE.

<u>Menu Choices</u>	<u>Description</u>
ON	This IF statement will be TRUE as long as a voltage is applied to the Digital Input selected in the list box.
OFF	This IF statement will be TRUE as long as there is <u>no</u> voltage to the Digital Input selected in the list box.
Toggle	The IF statement will be TRUE if the Digital Input changes from either ON to OFF or OFF to ON, it doesn't matter which way it changes, only that it did change.
Goes ON	This IF statement will be TRUE when a voltage is first applied to the Digital Input selected in the list box. It is equivalent to TOGGLES and IS ON.
Goes OFF	This IF statement will be TRUE when a voltage is first removed from the Digital Input selected in the list box. It is equivalent to TOGGLES and IS OFF.

## If Analog Inputs

*What is it* An Analog Input measures voltages that range from 0 to 5 volts DC. The converted value can range anywhere from 0 to 255. The Analog value can be compared against a value, Analog Input, HVAC temperature or SetPoint, or Variable and used to trigger an Event.

*How Used* When used in the schedule, the Analog Input will be compared against the type that you specify.

### **Compare Options**

Equal to	Analog Input is equal to
Less than	Analog Input is less than
Greater than	Analog Input is greater than
Less than/Equal to	Analog Input is less than or equal to
Greater than/Equal to	Analog Input is greater than or equal to
Not Equal to	Analog Input is not equal to

Changes Value	This condition will be true if the value changes since the last schedule pass.
Increases in Value	This condition will be true if the value has increased since the last schedule pass
Decreases in Value	This condition will be true if the value has decreased since the last schedule pass
Bits 0-7 Set	These conditions check to determine if the specified bit is set (has a value of one). Variables/Analog Inputs/HVAC values are stored as 8-bit numbers ranging from 0 to 255. Bit 0 is the least significant bit (LSB) and bit 7 is the most significant bit (MSB). Here are some examples:  If the Analog Input = 0(decimal) (00000000b), no bits are set. If the Analog Input = 8(decimal) (00001000b), only bit 3 is set. If the Analog Input = 6(decimal) (00000110b), bits 1, and 2 are set. If the Analog Input = 192(decimal) (11000000b), bits 7 and 6 are set.
Bits 0-7 Not Set	These conditions check to determine if the specified bit is NOT set (has a value of zero). Variables /Analog Inputs/HVAC values are stored as 8-bit numbers ranging from 0 to 255. Bit 0 is the least significant bit (LSB) and bit 7 is the most significant bit (MSB).

**Compare Against**

Value	If selected, the Analog Input highlighted in the listbox will be compared against a value that can range from 0 to 255 (see picture above).
A/D Device	If selected, the Analog Input highlighted in the listbox will be compared against an A/D input shown in the listbox to the right.
Variable	If selected, the Analog Input highlighted in the listbox will be compared against a Variable picked from the listbox to the right.
HVAC	If selected, the Analog Input highlighted in the listbox will be compared against an HVAC value shown in the listbox to the right.

**If Relay Output**

<i>What is it</i>	The state of a Relay Output can be compared and used in a schedule.
<i>How Used</i>	When used in a schedule, AUTOMATE DOMOTIQUE will test the state of a Relay.

**Menu Choices      Description**

ON	This IF statement will be TRUE if the Relay is in the ON state.
OFF	This IF statement will be TRUE if the Relay is in the OFF state.

**If Infrared**

<i>What is it</i>	When used in conjunction with the JDS InfraRed Xpander™, received Infrared Command Sequences and Power Sensor Input states can be compared. AUTOMATE DOMOTIQUE monitors the InfraRed Xpander™ and compares Infrared commands received with the command(s) that you specify in the IR Sequence box. A command sequence can consist of up to 10 commands and a time window that they must occur in. An IR command sequence can consist of any learned IR commands.
<i>How Used</i>	First, configure the InfraRed Xpander™ using the Define   IR & IO   IRXpander setup screen. IR Sequences can be used after IR codes have been learned into the InfraRed Xpander™. IR Power Sensor states can be used after names have been assigned to the ports.

**IR Sequence**

An IR sequence is a number of IR commands received by the InfraRed Xpander™ within a time window.

**IR Power Sensor**

IR Power Sensors can be tested for ON and OFF states.

## If HVAC

These are the Thermostats that you have defined in Define | HVAC.

*What is it* The Thermostat's SetPoint and Temperature can be compared against a value, Analog Input, another HVAC temperature or SetPoint, or Variable and used to trigger an Event.

*How Used* When used in the schedule, the Thermostat's SetPoint or Temperature will be compared against the type that you specify.

### ***Compare Options***

Equal to SetPoint or Temperature is equal to

Less than SetPoint or Temperature is less than

Greater than SetPoint or Temperature is greater than

Less than/Equal to SetPoint or Temperature is less than or equal to

Greater than/Equal to SetPoint or Temperature is greater than or equal to

Not Equal to SetPoint or Temperature is not equal to

Changes Value This condition will be true if the value changes since the last schedule pass.

Increases in Value This condition will be true if the value has increased since the last schedule pass

Decreases in Value This condition will be true if the value has decreased since the last schedule pass

Bits 0-7 Set These conditions check to determine if the specified bit is set (has a value of one). Variables/Analog Inputs/HVAC values are stored as 8-bit numbers ranging from 0 to 255. Bit 0 is the least significant bit (LSB) and bit 7 is the most significant bit (MSB). Here are some examples:

If the SetPoint or Temperature = 0(decimal) (00000000b), no bits are set.

If the SetPoint or Temperature = 8(decimal) (00001000b), only bit 3 is set.

If the SetPoint or Temperature = 6(decimal) (00000110b), bits 1, and 2 are set.

If the SetPoint or Temperature = 192(decimal) (11000000b), bits 7 and 6 are set.

Bits 0-7 Not Set These conditions check to determine if the specified bit is NOT set (has a value of zero). Variables /Analog Inputs/HVAC values are stored as 8-bit numbers ranging from 0 to 255. Bit 0 is the least significant bit (LSB) and bit 7 is the most significant bit (MSB).

### ***Compare Against***

Value If selected, the SetPoint or Temperature highlighted in the listbox will be compared against a value that can range from 0 to 255 (see picture above).

A/D Device If selected, the SetPoint or Temperature highlighted in the listbox will be compared against an A/D input shown in the listbox to the right.

Variable If selected, the SetPoint or Temperature highlighted in the listbox will be compared against a Variable picked from the listbox to the right.

HVAC If selected, the SetPoint or Temperature highlighted in the listbox will be compared against an HVAC value shown in the listbox to the right.

## THEN/ELSE Actions

An Event will execute the THEN Actions when the condition(s) in the IF section are TRUE, and the ELSE Actions when the condition(s) in the IF section are FALSE. THEN and ELSE actions can be any combination of X-10 commands, IR commands, Relays (on/off), ASCII out, timers, flags, variables, logging a message and Then Macros.

To add a THEN or ELSE Action to an Event, place the highlight bar where you want to add the Action, in the THEN or ELSE section of the Event, and press the [ADD] button.

A popup menu will appear allowing you to choose the type of THEN or ELSE action that you want. Select the type by moving the highlight bar and pressing [Return] or click with the mouse. A dialog box will appear and allow you to fill in the information needed.

## X-10 Device

*What is it* These are the X-10 Devices that have been defined and can be used in your schedule. You can also enter the HouseCode and UnitCode instead of using the X-10 [Device DataBase](#).

*How Used* When used in the schedule, X-10 Devices can be turned ON, OFF, Dimmed or Brightened. Also global commands such as All Lights On, All Lights OFF and All Units OFF can be sent.

<u>Menu Choices</u>	<u>Description</u>
Set Module to IDLE	Sets module to IDLE
ON	Sets module to ON
OFF	Sets module to OFF
Brighten # steps	Brighten module # number of steps
Dim # steps	Dim module # number of steps
All Lights ON	Sends the All Lights ON command
All Lights OFF	Sends the All Lights OFF command
All Units OFF	Sends the All Units OFF command
Set to Level %	Sets the module to a specific level using standard X-10 DIM/BRI commands
Preset to Level %	Sets the module to a specific level using PreSet X-10 commands. Note the module must support the Preset Dim command.
Micro-Bright # steps	Micro Brighten the module # number of steps. This command is used with PCS style modules only.
Micro-Dim # steps	Micro Dim the module # number of steps. This command is used with PCS style modules only.
Status Request	Sends the Status Request command
Status is ON	Sends the Status=ON command
Status is OFF	Sends the Status=OFF command
Hail Request	Sends the Hail Request command
Hail Acknowledge	Sends the Hail Acknowledge command
Toggle Module State	Toggles the Modules State by sending an OFF command if the module is ON, an ON command if the module is OFF.
Refresh Module	Refresh the module by sending the current state of the module.
Enable Module	This command enables a module that was previously disabled. A module must be enabled before it will respond to any commands or transmit an X-10 signal via the schedule.
Disable Module	A disabled module will not respond to any commands except for Enable Module. This command can be used as a quick way to prevent any other part of your schedule from controlling a module.

Enable X10 ON Trigger	Enables <b>Fast Events</b> based on the X10 ON Trigger. Fast Events Triggers are enabled by default. This command will enable a trigger if it has been disabled.
Disable X10 ON Trigger	Disables <b>Fast Events</b> based on the X10 ON Trigger. Fast Events Triggers are enabled by default. This command will disable a trigger if it has been enabled.
Enable X10 OFF Trigger	Enables <b>Fast Events</b> based on the X10 OFF Trigger. Fast Events Triggers are enabled by default. This command will enable a trigger if it has been disabled.
Disable X10 OFF Trigger	Disables <b>Fast Events</b> based on the X10 OFF Trigger. Fast Events Triggers are enabled by default. This command will disable a trigger if it has been enabled.
Set State to ON	This command sets the current state in the state table to ON, Level 11. It does not send any X-10 signal over the power line.
Set State to OFF	This command sets the current state in the state table to OFF, Level 12. It does not send any X-10 signal over the power line.
Set State to IDLE	This command sets the current state in the state table to IDLE. It leaves the level unchanged. It does not send any X-10 signal over the power line.
Send ON Command Only	This command sends the X10 ON command.
Send OFF Command Only	This command sends the X10 OFF command.
Send BRI Command # times	This command sends the X10 BRI command ## number of times.
Send DIM Command # times	This command sends the X10 DIM command ## number of times.
Put current level into Variable	This command puts the X-10 module's current light setting into the specified variable. If the light is ON, its level (0 to 10) will be put in the variable. If the light is OFF, the variable is set to 11. This command allows you to store the current level and later set the light back to it. See the following commands for more information on setting the light to the level contained in a variable.
Put 'Preset Dim' level into Variable	This command puts the received preset dim level (1 to 32) into the specified variable. This allows you to receive preset dim signals from devices that transmit them. Whenever the controller receives a preset dim signal immediately following a house/unit code signal, it stores the preset dim level for that house/unit code.
Set to level in Variable	This command reads the value of the specified variable and sets the X-10 module to that level. If the variable value is 0 to 10, the light will be turned on at that level. If the variable value is 11, the light will go off. Remember that a light ON at level 0 is not the same as OFF.
Set to Preset Level in Variable	This command transmits a preset dim signal. The preset dim level (1 to 32) is taken from the specified variable. Thus, if the variable contains the value 12, the X-10 signal "preset dim to level 12, 35%, " is transmitted.

## Timer/Delay

<i>What is it</i>	These are the Timers that have you have defined in the <b>Device DataBase</b> . Timers are countdown timers, meaning, once a Timer is loaded, it will decrement every second until it reaches zero (00:00:00), or is stopped by an Event. The maximum amount of time that can be loaded into a Timer is 18 hours, 12 minutes, 16 seconds (18:12:16).
<i>How Used</i>	Timers can be used in an Event to provide 1 second resolution time events. The Timers can be stopped and started at any time as well as cleared.

<b><u>Menu Choices</u></b>	<b><u>Description</u></b>
----------------------------	---------------------------

Stop	Stop the Timer from running. If the timer is already stopped or expired, this command has no effect.
Start	Start the Timer. If the timer is already running, this has no effect.
Clear	Clear the Timer, this will set the timer to 00:00:00.
Load	Load the Timer with the value specified. This will automatically start the Timer so no Start command is needed.

Delay	Delay execution of this Event by the amount of time specified. When placed in an Event, the Delay statement will delay execution of only that Event, until the delay time has expired.
Re-triggerable	If selected, the Delay will be re-triggerable. A re-triggerable Delay will be re-loaded automatically every time the If condition(s) become true.

### Example 14 Delay Example 1

```

EVENT Hallway Light
If
(XSEQ: A-14 A-ON) Received within 4 seconds
Then
(X:Hallway Light A-2) ON
DELAY 0:05:00 -Re-triggerable
(X:Hallway Light A-2) OFF
End

```

In this example, a motion sensor is setup to send the X-10 'A-14 A-ON' command whenever motion is detected in the hallway. When this sequence is received, the Hallway Light will turn ON, wait 5 minutes and then turn OFF.

But what happens if somebody is in the hallway for more than 5 minutes or walks through with 1 second left? Normally, the Hallway Light will still turn off after 5 minutes. However, if you define the Delay as Re-triggerable, whenever the IF Condition is true again (X10 SEQ: A14 A-ON is this example) the Delay would be re-loaded with 5 minutes.

### Example 15 Delay Example 2

```

EVENT sprinklers
If
Time = 4:00 AM SMTWTFS
Then
(X:Sprinkler 1) ON
DELAY 0:06:00
(X:Sprinkler 1) OFF
(X:Sprinkler 2) ON
DELAY 0:04:00
(X:Sprinkler 2) OFF
(X:Sprinkler 3) ON
DELAY 0:12:00
(X:Sprinkler 3) OFF
End

```

In the example above, at 4:00 AM Sprinkler 1 will turn ON and the Event will Delay for 6 minutes. Sprinkler 1 will then turn OFF, Sprinkler 2 will turn ON. After 4 minutes it will turn OFF and Sprinkler 3 will turn ON for 12 minutes and then turn OFF.

---

**Note: Delays that are used in one Event will have no effect on any other Event.**

---

## Flag

*What is it* Flags are used as variables or markers that have two states, Set or Cleared. Events can use Flags to communicate with each other.

*How Used* When used in the schedule, AUTOMATE DOMOTIQUE will Set or Clear the Flag.

<u>Menu Choices</u>	<u>Description</u>
Set	Set the Flag
Clear	Clear the Flag
IDLE	Set the Flag to IDLE

## Example 16 It's Dark

```
EVENT Set flag It's Dark
If
  After SunSet SMTWTFS
  or Before SunRise SMTWTFS
Then
  (F:It's Dark) SET
Else
  (F:It's Dark) CLEAR
End
```

In the above example, the flag 'It's Dark' will be set when it is dark, that is, after SunSet or before SunRise, and clear the flag when it is light outside.

## Variable

*What is it* Variables are 8 bit and can have a value that ranges from 0 to 255. This value can be loaded directly, loaded with an A/D Input value, loaded with another Variable, cleared, incremented or decremented. Two additional system variables are user\_VAR (8 bit) and user\_16VAR (16 bit). The user variables are used as exchange variables, various THEN Actions use these variables to store a value to later use by another THEN Action.

*How Used* Variables can be used to keep track of how many times something happens and can trigger other Events.

<u>Menu Choices</u>	<u>Description</u>
Load with Value	Load the Variable with the Value specified. Note that the maximum that can be loaded is 255 and the minimum 0.
Load with A/D	Load the Variable with the A/D Input chosen in the rightmost listbox.
Load with Value	Load the Variable with the value from another Variable.
Clear	Clear the Variable. This would be the same as loading the Variable with 0.
Increment	Increment the Variable by 1. If the value is already 255, this command will not do anything.
Decrement	Decrement the Variable by 1. If the value is already 0, this command will not do anything.
Load Value	The value that will be loaded if the 'Load' option is chosen. Valid range for variables is 0-255.
Increment (roll-over at 255)	Increments (i.e. adds 1 to) variable. If the initial value is 255, it will roll over to zero.
Decrement (roll-under at 0)	Decrements (i.e. subtracts 1 to) variable. If the initial value is 0, it will roll over to 255.
Load with random number	Loads variable with a random number (range 0-255).
Load with user_VAR	Loads variable with user_VAR.
Load with HVAC	Loads variable with HVAC Temperature/SetPoint. Note this command can only work with the TX10B Bi-directional Thermostat.
variable = variable + ###	Add a value (###) to a variable.
variable = variable + var2	Add another variable.
variable = variable - ###	Subtract a value (###) from a variable.
variable = ### - variable	Subtract a variable from a value (###), and put it into the variable.
variable = variable - var2	Subtract a second variable from the first variable.
variable = variable * ###	Multiply a variable by a value (###). If the result is more than the variable maximum (255), it will be truncated to an 8-bit value.
variable = variable / ###	Divides a variable by a value (###).
Load user_VAR with another variable	Load the user_VAR with another variable.

Load var1 & var2 with user\_16VAR Loads two (8 bit) variables with the user\_16VAR (16 bit). The Most Significant Byte (MSB) of user\_16VAR is loaded into var1, the Least Significant Byte (LSB) is loaded into var2.

For example, if user\_16VAR contains 25,655 the command: load var1 & var2 with user\_16VAR would give these results: var1 = 100 var2 = 55

Load user\_16VAR with var1 & var2 Loads the user\_16VAR(16 bit) with two (8 bit) variables . The Most Significant Byte (MSB) of user\_16VAR is loaded by var1, the Least Significant Byte (LSB) is loaded by var2.

For example, if var1 = 25 and var2 = 243 the command:

load user\_16VAR with var1 & var2 would give these results: user\_16VAR = 6643

(The basic formula is: user\_16VAR = (var1 x 256) + var2)

Load user\_16VAR with var1 \* var2 Loads the user\_16VAR(16 bit) with the product of two (8 bit)variables multiplied together.

For example, if var1 = 47 and var2 = 128 the command:

load user\_16VAR with var1 \* var2 would give these results: user\_16VAR = 6016

Load user\_16VAR with var1 + var2 Loads the user\_16VAR(16 bit) with the sum of two (8 bit)variables added together.

For example, if var1 = 243 and var2 = 198 the command:

load user\_16VAR with var1 + var2 would give these results: user\_16VAR = 441

Increment user\_16VAR

Increments the user\_16VAR, if the maximum value(65535) is reached, it will roll over to 0.

Decrement user\_16VAR

Decrements the user\_16VAR, if the minimum value(0) is reached, it will roll under to 65535.

## Message Logging

### What is it

Messages of up to 32 characters of text each can be saved to the Log. Analog Input and Variable values can be embedded into the text as well. The Log can hold 8000 characters of message data. Each Log entry has a 6 character overhead for time and date, so if you were logging a 10 character message, you could store 500 entries,  $8000 \div (10 \text{ [for message]} + 6 \text{ [for overhead]}) = 500$ .

### How Used

The text in the Log statement will be saved in the Log and can be read out using the Read Log utility.

A Wizard function is available to aid in embedding variables and Analog Inputs or Variables into the text string.

### Example 17 Message Log

```
EVENT: Log Output Example
If - Always
(F:Log Temp) is ON
Then
LOG: 'Temp is <Outside Temp> Degrees'
Delay 1:00:00
End
```

In this example, as long as the Flag 'Log Temp' is ON, the temperature will be stored in the Log at an hourly interval.

## THEN Macro

### What is it

A THEN Macro is set of THEN Actions that have a name (like an Event with no IF conditions) and can be used multiple times in a schedule.

### How Used

When used in the schedule, AUTOMATE DOMOTIQUE will execute the statements in the THEN Macro. THEN Macros are useful when a group of Devices will be turned ON or OFF many times in a schedule. Defining these Devices as a Macro will simplify programming.

### Example 18 THEN MACRO 'Day Lights Off'

```
MACRO BEGIN
(X: Hallway Light A-7) OFF
(X: Bedroom Light A-15) OFF
(X: Kitchen Light A-4) OFF
(X: Bathroom Light A-3) OFF
End
```

### Example 19 Using THEN MACRO

```
EVENT Turn off Lights in daytime
If
Time = 9:00 AM .MTWTF.
Then
(THEN MACRO: Day Lights Off)
End
```

## Comment

*What is it*

A Comment can be a description or a note. It does not affect the way the Event works in any way.

*How Used*

When used in the schedule, a Comment can add some description of what the Event is doing. A Comment can be placed anywhere within the Event.

## IR Command

These are the IR Commands that are available for use in an Event (requires *IR-XP<sup>2</sup> InfraRed Xpander*).

***For complete setup, programming and operational information, refer to the IR-XP<sup>2</sup> InfraRed Xpander instruction manual.***

*What is it*                      The IR Command will instruct the InfraRed Xpander to issue an IR command defined in the Define | IR menu.

*How Used*                      When used in a Schedule, AUTOMATE DOMOTIQUE instructs the InfraRed Xpander to send the highlighted IR command out the selected Emitter Output(s), the number of times selected in the 'Play \_ Times' box.

<u>Menu Choices</u>	<u>Description</u>
---------------------	--------------------

IR Commands	This is the IR command that will be sent.
-------------	---

Emitter Outputs	This is the Emitter Output port(s) of the InfraRed Xpander the selected IR command will be sent out of.
-----------------	---

Play ## Times	This is the number of times the IR command will be sent.
---------------	--

## ASCII Out

*What is it*                      Up to 32 characters of ASCII text can be sent out the serial port to be used by other programs or products and converting ASCII input strings into the user\_VAR variable. Analog Input and Variable values can be embedded into the text as well. ASCII Out can also trigger Wavefiles (.wav) and execute other Windows programs (.exe).

*How Used*                      The text in the ASCII Out statement will be sent out the serial port. Programs other than Event Manager can use this text as a monitor, to trigger another program on a PC, etc. ASCII Out text will show up in the MegaController.

To include Analog Inputs or Variables into the ASCII string, place the Analog Input or Variable name between the <> characters similar to this: <name>. When the ASCII text is printed, the <name> will be replaced with the value of the Analog Input or Variable.

If you need more than 32 characters of text in a line, you can combine lines by putting the '\ ' character as the last character is the line (see example below).

<u>Menu Choices</u>	<u>Description</u>
---------------------	--------------------

Output ASCII String	Send the ASCII string to the specified port.
---------------------	--

*(The following commands look at the specified character location(s) in a serial data string, converts it to a number, and loads it into the system variable user\_VAR. After the value is put in user\_VAR, you can use variable commands to move it to a variable and perform other operations on it)*

Put value of received char # into user\_VAR

Converts a single character into a number, which must be between 0 and 9.

Put value of received char ## into user\_VAR

Converts two consecutive characters into a number, both of which must be between 0 and 99.

Put value of received char ### into user\_VAR

Converts three consecutive characters into a number, all of which must be between 0 and 255.

Wizards are available to assist adding Time/Date, variables, analog inputs, user\_VAR, user\_16VAR, binary value and Lutron HomeWorks commands.

## Example 20 ASCII Out

```
EVENT: ASCII Out Example 1
If
  (X:FrontDoor PIR H8) is ON
Then
  (V:Frnt Door ) Increment
  ASCII-Out: '<Frnt Door> people approached door' [COM 2]
End
```

```
EVENT: ASCII Out Example 2
If
  ASCII-In: 'Temp'
Then
  ASCII-Out: 'Temperature is <Outside Temp> \'
  ASCII-Out: 'degrees'
End
```

In the first example, every time the FrontDoor motion detector (PIR) is triggered the 'Frnt Door' Variable is incremented and the ASCII Out string is sent out the serial port. In this example, if the 'Frnt Door' Variable is incremented to 12, the ASCII Out string would be:

12 people approached door

In the second example, the Analog Input "Outside Temp" is connected to a temperature sensor and the current temperature is 77 degrees. When the ASCII-In "Temp" is received, the ASCII-Out string sent out the serial port is:

Temperature is 77 degrees

Note the use of the '\' character at the end of the first ASCII-Out string and how it kept the two lines together. If the '\' character was not used, the string would look like this:

Temperature is 77  
degrees

## Example 21 ASCII Out Example

If the received data string is: "234"

The following command sets user\_VAR equal to 2: Put value of received char #1 into user\_VAR

The following command sets user\_VAR equal to 2: Put value Of received char #2 into user\_VAR

The following command sets user\_VAR equal to 23: Put value Of received chars #1-2 into user\_VAR

The following command sets user\_VAR equal to 234: Put value Of received chars #1-3 into user\_VAR

## Example 22 ASCII Out Example

If the received data string is: "Wind Speed is 15"

The following command sets user\_VAR equal to 15: Put value Of received chars #15-16 into user\_VAR

## Wave File Support

To play a wave file first you must have the capability to play wave files through a sound card. Use the software that came with the sound card to create or edit wave files for WinEVM, or you can use the Windows Sound Recorder (a standard Microsoft Window's accessory) with your sound card to record your wave files. The wave files must be located in the WinEVM directory/folder or a directory/folder listed in your autoexec.bat path.

To get a WinEVM event to play a wave file, simply add the **@@filename.wav** character string as your ASCII Output, and WinEVM will use the Windows built in MCI features to send the wave file to the sound card (see example below). The wavefile can be any length, playing will not affect any AUTOMATE DOMOTIQUE functions, although the MegaController may be temporarily affected.

---

**Note: For the wave file to play, WinEVM must be running with the MegaController active. The MegaController captures the ASCII Out text, and when it detects the special "@@" string, it sends the wavefile information to the sound card to play.**

---

### WinExec Support

To get a WinEVM event to execute a Windows program, simply add the **&& program.exe** character string as your ASCII Output, and WinEVM will execute the program (see example below).

---

**Note: For the WinExec feature to work, WinEVM must be running with the MegaController active. The MegaController captures the ASCII Out text, and when it detects the special "&&" string, it triggers the program.**

---

### Example 23 Wav File

```
EVENT: Wave & WinExec Example
If
  (X:FrontDoor PIR H8) is ON
Then
  (V:Frnt Door ) Increment
  ASCII-Out: '<Frnt Door> people approached Door'
  ASCII Out: '@@hello.wav'
  ASCII Out: '&&notepad.exe'
End
```

### Nested IF/THEN

**What is it** A Nested IF/THEN is an Event within an Event. It can be an AND or OR as well as IF/THEN or IF/THEN/ELSE. The maximum levels of nesting is 3.

**How Used** Nesting can be used to simplify a complex set of criteria for doing some action.

Nesting example:

```
EVENT: Nesting Example1
If
  (XSEQ: M-1 M-ON) received with 3 seconds
Then
  If
    (X:Drapes A-13) is ON
  Then
    (X:Drapes A-13) OFF
  End
  If
    (X:TV B-1) is OFF
  Then
    (X:TV B-1) ON
  End
End
```

In the above example, if the X-10 sequence M-1 M-ON is received by AUTOMATE DOMOTIQUE, it will then test to see if the Drapes (A-13) are open, if they are, AUTOMATE DOMOTIQUE will close them, it then tests if the TV (B-1) is off, if it is, AUTOMATE DOMOTIQUE will turn it on.

## Relay Output

*How Used* When used in a schedule, AUTOMATE DOMOTIQUE will turn the selected Relay ON or OFF.

<u>Menu Choices</u>	<u>Description</u>
ON	If selected, the Relay Output highlighted in the listbox will be turned ON.
OFF	If selected, the Relay Output highlighted in the listbox will be turned OFF.

## HVAC

*What is it* Thermostat's SetPoint, Modes, Fan and Setback Temperatures can be controlled through a schedule. The Thermostat must have been previously defined in Define | HVAC.

*How Used* Select the Thermostat and the command to be sent. AUTOMATE DOMOTIQUE will issue the command when used in a schedule.

<u>Menu Choices</u>	<u>Description</u>
Set (SetPoint) Temperature	Adjust the Thermostat's SetPoint.
OFF	Set the Thermostat's operating mode to OFF.
HEAT	Set the Thermostat's operating mode to HEAT.
COOL	Set the Thermostat's operating mode to COOL.
AUTO	Set the Thermostat's operating mode to AUTO.
Increment SetPoint	Increment the Thermostat's SetPoint by 1 degree.
Decrement SetPoint	Decrement the Thermostat's SetPoint by 1 degree.
Setback ON	Enable the SetBack mode and the SetBack offset.
Setback OFF	Turn the SetBack mode OFF.
FAN ON	Turn the FAN ON.
FAN OFF	Turn the FAN OFF.
Load SetPoint with user_VAR	Loads the selected Thermostat's SetPoint with user_VAR.

## Menu Choices

### File

The File menu lets you open and create Schedules. The menu also lets you save your changes, print the schedule, DownLoad to AUTOMATE DOMOTIQUE and Exit the program.

#### File - New

The **File | New** command lets you open a new Schedule with the default name Untitled.sch. Event Manager will prompt you to name an Untitled Schedule when you try to save it.

## File - Open

The **File | Open** command displays a Schedule-selection dialog box for you to select a Schedule to open into the editor workspace.

The Open Schedule box contains a schedule list and buttons labeled [OK] and [Cancel]. Once you've selected the schedule you want to open and load into Event Manager, choose the [OK] button (choose [Cancel] if you change your mind). You can also press <Enter> once the schedule is selected, or you can double-click the schedule name with the left mouse button.

## File - Save

The **File | Save** command lets you save the current Schedule to a file in the directory that you started Event Manager in. If the schedule has the default name (Untitled.sch), Event Manager will open the **Save Schedule** dialog box to let you rename and save as a different name.

Event Manager will save the Schedule with the '.sch' file extension. If a Schedule that is being saved already exists in the directory that you are in, Event Manager will rename the old version with a '.bak' file extension.

## File - Save As

The **File | Save As** command lets you save the schedule in the Editor workspace under a different name. When you choose this command, you see the Save As dialog box.

## File - Rules Check

The **File | Rules Check** command will check for any errors in the current Schedule. The types of errors that will be checked are:

- ⚡ Use of a Device that is not in the **Device DataBase**
- ⚡ Empty Events
- ⚡ Illegal combination of Conditions and Actions

A window will pop-up giving you a description of the error, and the line number that it occurs on.

## File - Download

The **File | Download** command lets you Download the current schedule as well as initial Device settings.

You have the option of downloading your Device's Initial States as defined in the 'Define Device' menus. If you do not want to change the states of the devices that have been updated by AUTOMATE DOMOTIQUE, do not select this checkbox.

*What is it* If you create a new Schedule or change one, it **must** be downloaded to AUTOMATE DOMOTIQUE before it can be used. The Download option will download the schedule that is currently in the workspace.

*How Used* Select the checkbox for the Download option that you want. If you want to download the Schedule, select the Schedule checkbox. If you want to download the Initial Device States, select that checkbox.

<u>Menu Choices</u>	<u>Description</u>
Save Schedule to Disk	Selecting this checkbox will save the Schedule and <b>Device DataBase</b> before downloading.
⚡	
Download Schedule	Selecting this checkbox will download the current Schedule. Before the Schedule is downloaded, a Rules Check is automatically performed. If there are any errors, you will be asked to use the <b>Schedule   Rules Check</b> option to get more details. After the Schedule is downloaded, there will be a slight delay while AUTOMATE DOMOTIQUE is preparing the Schedule to run.



Download **Device DataBase**

This option is useful for forcing all of your X-10 devices to a known state before the Schedule is loaded. This option will take more time if you have a large amount of X-10 devices in your DataBase.

---

Note: **You cannot download a schedule that has errors!**

---

## File - Print

The **File | Print** command lets you print the contents of the current Schedule.

<u>Menu Choices</u>	<u>Description</u>
Initial FormFeed	Selecting this checkbox will send a FormFeed command to your printer before printing.
Line Numbers	Selecting this option will add line numbers to the Schedule when it is printing.
Schedule Listing	Selecting this checkbox will print the Schedule that is active in the workspace.
Device Listing	Selecting this checkbox will print out the <b>Device DataBase</b> .
Print to File	Selecting this checkbox will print to a File instead of the Printer.
Setup	Selecting this button will open a dialog box in which you can choose print options.
<u>Menu Choices</u>	<u>Description</u>
Print using CSV Format	This option will print the <b>Device DataBase</b> using the CSV (comma separated variable) format which can be used by many popular spreadsheet programs.
Suppress Nesting Bars	If selected, the nesting bars of the Nested IF/THENs will be printed.

## File - Exit

The **File | Exit** exits to DOS from Event Manager. If there are any changed Schedules that you have not saved, Event Manager will prompt you to save it. The Device and Macro DataBase will also be saved if any changes have been made. These are saved into the files device.dbf and macro.dbf, the old versions being renamed device.bak and macro.bak.

## Edit

### Selecting Items

To tag the item(s) in your schedule that you want to work with, you select the lines. You can select lines a variety of ways using the mouse or the keyboard.

The selected lines in your schedule are called the *selection* and is marked on your screen with a different background color.

To Select any line or a series of lines

You can use this technique to select any line or series of lines in your schedule.

Point to where you want the selection to begin, hold down the left mouse button, and drag the mouse pointer to where you want the selection to end.

-Or-

Position the highlight bar where you want the selection to begin. Hold down SHIFT as you use the arrow keys to move the highlight bar to where you want the selection to end.

## Cut

Lines that are Cut from a schedule are first copied into the Clipboard and then removed from the schedule.

### Moving and Copying lines using the Clipboard

Lines that you cut or copy are placed in the Clipboard, a temporary storage area. A line placed in the Clipboard remains there until you choose the Cut or Copy command again, when it is replaced with the new item. You can paste an item from the Clipboard into your schedule as many times as you like. The following instructions tell how to move and copy lines:

1. Select the lines or Event
2. To move lines, choose Cut from the Editor menu or press Ctrl-X on the keyboard.  
-OR-
  1. To copy lines, choose Copy from the Editor menu or press Ctrl-C on the keyboard.
  2. Position the highlight bar in a new location.
  3. From the Editor menu, choose Paste or press Ctrl-V on the keyboard.

## Copy

Selected lines are copied into the Clipboard.

The optional shortcut key for the Copy command is Ctrl-C.

## Paste

Lines that have been Cut or Copied into the Clipboard are Pasted into the schedule at the point that the highlight bar is positioned.

The optional shortcut key for the Paste command is Ctrl-V.

## Freeze

Any line or lines that are selected will become 'Frozen'. This is similar to commenting out a line or using a 'REM' statement in a batch file. Any line or lines that are Frozen will not be downloaded.

---

**Note: If you use this command to Freeze a line or lines, you must download your schedule for this to take effect.**

---

## Thaw

Any line that is selected and 'Frozen' will be 'Thawed' with this command. This is the opposite of the 'Freeze' command.

---

**Note if you use this command to Thaw a line or lines, you must download your schedule for this function to take effect.**

---

## Define

See Creating a [Device DataBase](#) on page 6.

## Utilities

The Utilities Menu is a collection of utilities that are used to interactively send X-10 commands, stop and start AUTOMATE DOMOTIQUE schedule, read/set the time and date, do an X-10 signal test, read AUTOMATE DOMOTIQUE Message Log and calculate the free memory available on your PC.

## Mega Controller

The **Utilities | Mega Controller** command will open the Mega Controller window. When selected, Event Manager will take a short time to upload the current status of the Devices.

The MegaController is a powerful On-Line interactive controller. It allows you to:

- ☞☞ Monitor the status of all 256 X-10 devices
- ☞☞ Control all 256 X-10 devices
- ☞☞ Send any X-10 command
- ☞☞ Send the Status Request command (used with 2-way X-10 devices)
- ☞☞ Send Preset Dim and Micro-Dim/Bright commands (used with PCS lighting modules and RCS thermostats)
- ☞☞ Display the last 100 commands that AUTOMATE DOMOTIQUE transmitted or received (HISTORY).
- ☞☞ Log the AUTOMATE DOMOTIQUE Activity to a file
- ☞☞ Read status, set or clear Flags
- ☞☞ Read and set Variable values
- ☞☞ Read Timers
- ☞☞ Read status of I/O devices (Digital Inputs, Analog Inputs, Relay Outputs)
- ☞☞ Set or Clear Relays
- ☞☞ Control HVAC (thermostats)
- ☞☞ Dial telephone numbers
- ☞☞ Send ASCII text
- ☞☞ Play .wav files

<u>Menu Choices</u>	<u>Description</u>
HouseCode	HouseCode used when an X-10 command is sent. The current HouseCode will be displayed in HouseCode dial left of the X10 matrix. To change the HouseCode, click with the left mouse button on the HouseCode dial, or click the HouseCode on the X10 matrix (leftmost column).
StatReq	This button will send the 'Status Request' command. This command <u>has</u> to follow a UnitCode command. A 2-way X-10 device will respond to this command with the 'Status = ON' or 'Status = OFF' command.
History	This button will clear the Activity Log and print the last 200 commands transmitted or received by AUTOMATE DOMOTIQUE.
Clear	This button will clear the Activity Log screen.
☞ Log to File	Selecting this button will cause the contents of the Activity Log to be saved into a file.
☞ Lock Scrolling	Selecting this button will prevent the Activity Log from scrolling when the MegaController receives information from AUTOMATE DOMOTIQUE.
Activity Log	Activity that AUTOMATE DOMOTIQUE sends or receives. A date and time stamp is applied to all activity. When AUTOMATE DOMOTIQUE receives an X-10 command, such as a command sent from a controller other than AUTOMATE DOMOTIQUE (like a mini-controller), the 'Rec' keyword will be placed after the time stamp. This will let you know if the X-10 command was sent by AUTOMATE DOMOTIQUE or by another controller. The Activity Log has a maximum capacity of 200 lines.

Colors... This button will open another box that gives you the choice of colors for the ON/OFF/IDLE states in the X10 Matrix.

### **X-10 Matrix**

The X-10 Matrix (grid) allows you to toggle the X-10 device or set the device to a particular state using the Mouse. By clicking certain areas of the matrix, you can change the state of X-10 devices.

<u>To</u>	<u>Do this</u>
Toggle an X10 Device...	Click on the device in the matrix with the left mouse button.
Set a device to a specific state	Click on the device with the right mouse button, a sub-menu will appear, select the ON/OFF state with the right mouse button.
Set the DIM/BRI level...	Click on the device with the right mouse button, a sub-menu will appear, select the Set Level choice, then select the level with right mouse button.
Send a PRESET level...	Click on the device with the right mouse button, a sub-menu will appear, select the PreSet Level choice, then select the level with right mouse button. NOTE: This command applies to PCS lighting modules and RCS bi-directional thermostats only.

### **Wave File and WinExec Support**

Support for playing .wav files and executing other Windows programs is provided through the MegaController. The MegaController *must* be running for Wavefiles to play. To include a wavefile in a schedule or execute another program, see the [ASCII Output](#) command.

### **Stop Schedule**

This command will stop the execution of the schedule in AUTOMATE DOMOTIQUE.

### **Start Schedule**

This selection will start the execution of the schedule that is in AUTOMATE DOMOTIQUE.

### **Clear Schedule**

This selection will clear the schedule that is in AUTOMATE DOMOTIQUE.

### **Time Set**

The Read/Set Time box is where Automate Domotique's Time and Date can be read or set.

<u>Menu Choices</u>	<u>Description</u>
Read Time	This button will read Automate Domotique's time and display it on the screen.
Set Time	Pressing this button will set the time in AUTOMATE DOMOTIQUE with the time specified in the dialog box. Note that this will also set the Latitude, Longitude and TimeZone information, information that is needed for proper SunRise/SunSet calculations.
Done	This button will exit out of the Read/Set Time box. You must first press 'Set Time' to save any changes before pressing 'Done.'

Set Time	Pressing this button will set the time in AUTOMATE DOMOTIQUE with the time specified in the dialog box. Note that this will also set the Latitude, Longitude and TimeZone information, information that is needed for proper SunRise/SunSet calculations.
Latitude	Displays and Sets the Latitude for your location (refer to Location chart in the Appendix).
Longitude	Displays and Sets the Longitude for your location (refer to Location chart in the Appendix).
Time Zone	This button will exit out of the Read/Set Time box. You must first press 'Set Time' to save any changes before pressing 'Done.'
Daylight Savings	Select this if Daylights Savings is observed in your area.
Refresh Interval	The period of time between Refresh cycles.
Security Interval	The maximum amount of random minutes added or subtracted from the specified time when 'Security Mode' is selected.

## X-10 Signal Test

The X-10 Signal Test is a tool that will send alternating ON-OFF commands. This is useful in finding areas of your home that may be receiving a weak X-10 signal.

If you suspect that the X-10 signal is not making it to parts of your home, change the code on an appliance module to match the HouseCode/UnitCode used in this test. Start the signal test and test all areas of your home by plugging in the appliance module and listening for the ON/OFF click. Although this is not a scientific means for measuring signal strength, it will give you a relative feel for areas that are not receiving the X-10 signals.

If you have areas that are not receiving the X-10 signal (but need to), you may need to install a signal coupler or signal bridge or move AUTOMATE DOMOTIQUE to a location in your home that will allow the signal to reach the dead areas.

<u>Menu Choices</u>	<u>Description</u>
HouseCode	HouseCode that will be used.
UnitCode	UnitCode that will be sent.
Start	Pressing this button will start the signal test. It will send commands in the following order: HouseCode - UnitCode HouseCode - ON HouseCode - UnitCode HouseCode - OFF ... repeating the sequence until the Stop Command is sent
Stop	Pressing this button will stop the signal test.
Cancel	Pressing this button will stop the signal test, and return to the Event Editor.

## System Info

The System Info command takes a snapshot of Automate Domotique's status and displays it in a window. Some of the status information that is displayed is:

☞☞ Firmware Version

- ☞☞ Current Schedule
- ☞☞ Time
- ☞☞ SunRise/SunSet times
- ☞☞ Latitude, Longitude, TimeZone
- ☞☞ Percent of Schedule memory used

## Message Log

The Message Display command opens the Message Log window that allows you to read any Message that has been logged by AUTOMATE DOMOTIQUE.

<u>Menu Choices</u>	<u>Description</u>
Read Messages	Pressing this button will read any Message that has been stored in AUTOMATE DOMOTIQUE.
Clear Messages	Pressing this button will clear the Message display <b>and</b> clear any Messages that have been stored in AUTOMATE DOMOTIQUE.
Save To File	Pressing this button will allow you to save the Message display to a file, with the file extension of “.msg”.

## Self Test

If you suspect any problems with your AUTOMATE DOMOTIQUE, there is a Built In Self Test (BIST) that AUTOMATE DOMOTIQUE can run. It tests the serial port, internal memory, the clock-calendar chip and the X-10 interface.

This test will clear any Schedule and Device states in AUTOMATE DOMOTIQUE, so you will have to download your Schedule after using it.

If the X-10 test fails, check the cable between AUTOMATE DOMOTIQUE and the TW523 Powerline Interface, make sure it is firmly connected. If any other test fails, contact Technical Support.

## Modem

With the Remote Execution capability of AUTOMATE DOMOTIQUE and Event Manager you can control your AUTOMATE DOMOTIQUE over the phone line using modems. This section describes the connections required, the setup of the modems and how to initiate a remote AUTOMATE DOMOTIQUE session.

For the Remote Execution feature to work, AUTOMATE DOMOTIQUE must be directly connected to a 9600 baud (or better) Hayes compatible modem through a NULL modem adapter. Your PC must have an internal 9600 baud (or better) Hayes compatible modem or be connected to an external modem through a serial port.

### Modem Setup

Before you can use AUTOMATE DOMOTIQUE with a modem, it is necessary to configure the modem parameters for your PC, for the remote modem and for the AUTOMATE DOMOTIQUE that will be connected to the remote modem.

To configure the remote modem (connected to AUTOMATE DOMOTIQUE):

1. Be sure the AUTOMATE DOMOTIQUE power transformer is connected properly to the ‘AC INPUT’ on the AUTOMATE DOMOTIQUE Main Processor Board and **NO backup battery is connected**.
2. Connect the AUTOMATE DOMOTIQUE serial port to your modem using a null modem cable or adapter.  
(A null modem cable or adapter reverses the ‘xmit’ (pin 2) and ‘receive’ (pin 3) lines to allow communication between devices with similar serial port pinouts such as AUTOMATE DOMOTIQUE and a modem).
3. Remove power from AUTOMATE DOMOTIQUE (unplug power transformer from wall).

4. Apply power to your modem and make sure it is On.
5. With your modem On, plug in the AUTOMATE DOMOTIQUE power transformer.
6. As AUTOMATE DOMOTIQUE initializes, it sends the following MODEM SETUP STRING to your modem: AT S0=10 Q0 V1 X4 &W0 &Y0.

This assures that when power is restored after a power outage, your modem will be ready for remote operation. If a backup battery is going to be used, AUTOMATE DOMOTIQUE will not experience a power outage and will not issue the modem setup string when power is restored. In this case, add an event to your schedule to send the setup string when power is restored.

7. To change the MODEM SETUP STRING, select MODEM SETUP and edit the MODEM SETUP STRING as needed, then press [OK] to save the changes, or [CANCEL] to escape without saving anything.

<u>Menu Choices</u>	<u>Description</u>
Modem Port	Select the serial port to which the PC's modem is connected. It can be different from the port into which you plugged the AUTOMATE DOMOTIQUE.
Speaker	This section gives you control of your modem's speaker.
Volume	You can set your speaker's volume to low, medium or high.
Num Retries	Enter the number of times you want Event Manager to redial the phone number after an unsuccessful attempt (i.e., busy line).
Retry Interval	Enter the number of seconds Event Manager will wait before retrying the call.
Comma Pause	Set the duration of the pause (in seconds) that each comma represents. When Event Manager encounters a comma while dialing a number, it will pause the specified time before continuing.
Wait between Calls	This is the maximum length of time Event Manager will wait for the remote modem to answer. After this time limit has passed, Event Manger will 'time out' and hang up. Enter the number of seconds to wait for the call to time-out (i.e., no answer).
[ ]Pulse Dialing	If you are using a pulse-dial (rotary) phone line, select this box.
Answer on Ring	The number of rings to wait before AUTOMATE DOMOTIQUE instructs the modem to answer. If you select 0 for this number, the remote modem will never answer. Note, if AUTOMATE DOMOTIQUE is not connected either remotely or locally, you will not be able to change this value.

### Quick Dial Setup

The entries in the Quick Dial Setup box appear in the Quick Dial section of the Dial Modem box. The Quick Dial buttons act like the memory buttons on an automatic-dialing phone. Each Quick Dial button stores a name and number.

### Connecting to a remote AUTOMATE DOMOTIQUE

Selecting the Utilities | Modem option from the main menu will put you into the Dial Modem box. Fill in the Dial Modem box. The following is a description of each field:

<b>To</b>	This is the phone number that the remote AUTOMATE DOMOTIQUE is at. You can automatically fill in the Name and Phone text-entry boxes using the Quick Dial buttons. You can also manually enter the information from the keyboard.
<b>Quick Dial</b>	The Quick Dial buttons work like the memory buttons on an automatic dialing phone. When you click on one, Event Manager automatically fills in the Name and Phone fields. Click on the Quick Dial Setup button to edit the Quick Dial section.

### Callback Options

When connecting to a remote AUTOMATE DOMOTIQUE, you may be calling from a location that has an expensive phone connect fee, such as on a vacation. With the Callback option, once a connection is made with the remote AUTOMATE DOMOTIQUE, Event Manager will send the remote AUTOMATE DOMOTIQUE the Callback number. The remote AUTOMATE DOMOTIQUE will hang-up the line and call that number back.

<u>Menu Choices</u>	<u>Description</u>
Callback Enabled	If selected, Event Manager will send the Callback number to the remote AUTOMATE DOMOTIQUE once a connection is made. If not selected, the remote AUTOMATE DOMOTIQUE will answer and assume a normal connection.
Pulse Dial on Callback	If the remote AUTOMATE DOMOTIQUE uses a pulse-dial (rotary) phone line, select this checkbox. It will instruct the remote AUTOMATE DOMOTIQUE to dial the phone number using pulse-dial (rotary) method.
Number	This is the number that Event Manager will send to the remote AUTOMATE DOMOTIQUE to call back. It is the phone number that the modem in your PC is connected to.

### Choosing the Start Command

Selecting the Start button will trigger Event Manager to start the calling procedure. The Dialing Status dialog box will appear and give you status of the call. You may abort the call at any time by selecting the Abort button or by pressing the [ESC] key on your keyboard.

The following sequence of events will take place after pressing the Start button:

<u>Event Manager</u>	<u>remote AUTOMATE DOMOTIQUE</u>
Dial number in 'To' section	waiting for call
	answer on 3rd ring
<i>(if CallBack is enabled )</i>	
<i>send CallBack number</i>	<i>hang up remote AUTOMATE DOMOTIQUE line</i>
<i>hang up line, wait for CallBack</i>	<i>wait 10 seconds</i>
	<i>dial CallBack number</i>
<i>answer on 1st ring</i>	
set REX flag	

After a connection to the remote AUTOMATE DOMOTIQUE is made, the REX flag (Remote EXecution) is set and will be shown on the status line (bottom line) of Event Manager. If the connection is ever lost or broken, the REX flag will be cleared and disappear from the status line.

### Controlling a remote AUTOMATE DOMOTIQUE

When you have established a connection, the remote AUTOMATE DOMOTIQUE can be controlled in the same manner as if it was still connected to your computer. You can create and download Schedules, access the MegaController, or do anything you would in a normal session.

### Ending the modem session

When you are ready to hang-up the line from the remote AUTOMATE DOMOTIQUE, you can do one of two things:

1. From the Utilities | Modem box, select the Hang-up button and Event Manager will hang up the phone line from the modem.
2. Exiting out of Event Manager will hang up the phone line.

## Options

The **UTILITIES | OPTIONS** box allows the user to select the serial port of the PC that is connected to AUTOMATE DOMOTIQUE, select the IR Remote type, and change X10 options.

<u>Menu Choices</u>	<u>Description</u>
Serial Port	Choose the serial port that the PC uses to communicate to the AUTOMATE DOMOTIQUE. <b>Note:</b> This is not the serial port used for remote communications, but the PC serial port that AUTOMATE DOMOTIQUE is directly connected to.
IR Remote Type	Select 'IR-Xpander' if you have an IR-XP2 InfraRed Xpander connected to the Automate Domotique's AUX port. If a different IR Remote type is used, select it in the menu.
X10 Options	<b>Single Phase/3 Phase:</b> Select the setting that meets the requirements of your AC power service. Most households use Single Phase AC service.  In environments with noisy powerlines, the X-10 signal that the Power Line Interface sees when it is sending can sometimes be altered enough that the AUTOMATE DOMOTIQUE thinks it did not send correctly, thereby causing it to re-send. By disabling the 3-Phase option, the AUTOMATE DOMOTIQUE will only send X-10 transmissions at the zero crossing of the electrical phase it is connected to. Note that 3-Phase transmission is only needed in a 3-Phase environment, most households do not use 3-Phase wiring.  <b>X10 Retry Attempt:</b> AUTOMATE DOMOTIQUE can detect X-10 collisions when it is transmitting X-10 signals by comparing what it is receiving from the Power Line Interface to what it sent. When a mismatch occurs, most likely it was a collision with another X-10 transmitter or noise. AUTOMATE DOMOTIQUE will attempt to retry the X-10 command the number of tries listed, from 0 for no Retries, up to 5.

## Time Setup

The Time Setup window allows you to configure your location, Refresh and Security Intervals. These parameters are necessary for calculating SunRise/SunSet times, and any Refresh or Security times.

<u>Menu Choices</u>	<u>Description</u>
Longitude	This is your location's Longitude.
Latitude	This is your location's Latitude.
TimeZone	This is your location's TimeZone.

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**Note: If your city is not listed in the appendix listing, choose the city that is closest to yours.**

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### ☞ Daylight Savings Time Used?

If you live in an area that observes Daylight Savings time, select this checkbox. AUTOMATE DOMOTIQUE will automatically adjust the time for Daylight Savings Time. This feature will only work for daylight savings time in the United States.

For countries other than the United States, you will have to manually change the time when Daylight Savings time goes in and out of effect. It may be necessary to change the TimeZone to get the SunRise/SunSet times to be correct.

Refresh Interval	The time interval between Refresh operations in minutes. This feature works with X-10 Devices only. A Refresh operation will re-transmit the ON/OFF state of any X-10 Device that has the Refresh Option enabled. This is useful if you have a device that turns itself ON or OFF mysteriously, or to override any local switching of lights.
Security Interval	The maximum amount of time that can be added or subtracted from the current time when the ☞ Security Mode option is set. Every day at midnight, AUTOMATE DOMOTIQUE will use this Security Interval to

calculate a random number that is between 0 and the Security Interval. If an Event is using a time based condition with the Security Mode option enabled, this random number is either added to or subtracted from (this is random also) the current time.

#### Example 24 Security Option

if the Security Interval is set for 15 minutes, and you have an Event such as:

```
EVENT Security Lights
If
  Time = 8:00 PM SMTWTFS Security Mode
Then
  (X:Porch Light B-3) B-ON
End
```

The Porch Light could be turned on anytime between 7:45 PM and 8:15 PM.

## Power Failure

AUTOMATE DOMOTIQUE has a built-in battery backup that allows it to retain it's memory in case your house has a power failure, or you decide to move AUTOMATE DOMOTIQUE to another location. AUTOMATE DOMOTIQUE can also detect when you have had a power failure and let you act on it.

When the power goes off in your home, most of the X-10 type equipment will go off, when power comes back on, AUTOMATE DOMOTIQUE may think these devices are still on, creating an out of sync problem. Another scenario is if during the time the power was out, your schedule was supposed to turn a device on, since power was not on at the time the device was to turn on, it never did.

For example, assume you had a light scheduled to turn on at 6:15:

From 6:00 to 6:30, there was a power failure:

When the power comes back on, the light will be off because it never got the ON command at 6:15.

AUTOMATE DOMOTIQUE knows that the power failed and will do the following:

- ⚡ Play catch-up to the current time and force any X-10 device that has it's 'Play Catch-up' flag set, to the state it would have been in had the power not gone out.
- ⚡ Set the 'Power-Fail' variable for use in the Schedule.

During Power Fail Catch-up, the yellow and green LED's will flash steadily, after catching up, both LED's will be on solid.

The Catch-up time will depend on how long power was out and how large your schedule is.

## FCC Compliance

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by JDS or IHS could void the user's authority to operate the equipment.

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**Note:** This product was FCC certified under test conditions that included the use of shielded I/O cables and connectors between system components. To be in compliance with FCC regulations, the user must use the shielded cables and connectors and install them properly.

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# Glossary of Terms

**Device DataBase** - The area where your Devices are created and stored.

**Editor Workspace** - Area where schedules are edited.

**ELSE Section** - The area in an Event between the 'Else' and 'End' keywords.

**Event** - An If section followed by a Then section. If the 'If' section is true, the 'Then' section is executed.

**Flag** - A variable that has two states, Set or Clear.

**Highlight Bar** - The black bar seen in a schedule showing the current position.

**IF Conditions** - Used by an Event to determine whether to do the 'Then' or 'Else' sections of an Event.

**IF Macro** - A series of 'If Conditions'.

**IF Section** - The area in an Event between the 'If' and 'Then' keywords.

**Initial State** - The initial state of a Device in the **Device DataBase**.

**Message** - A text message that AUTOMATE DOMOTIQUE can log.

**Message Log** - The storage area for AUTOMATE DOMOTIQUE messages.

**Refresh Interval** - The period of time between refresh cycles.

**Schedule** - A series of Events that control your home.

**SunRise/SunSet** - The times that the sun rises in the morning and sets in the evening.

**THEN Actions** - What the AUTOMATE DOMOTIQUE will execute when the conditions in the 'If' section are true.

**THEN Macro** - A series of 'Then' actions.

**THEN Section** - The area in an Event between the 'Then' and 'Else' or 'End' keywords.

**TimeLabels** - A time that has a label associated with it.

**Timer** - Used by AUTOMATE DOMOTIQUE to provide time based Events.

**TW523** - Two-Way Power Line Interface (P.L.I.) module that connects to AUTOMATE DOMOTIQUE.

**Variable** - Used by AUTOMATE DOMOTIQUE for counting.

**X-10 Device State** - The state of an X-10 device (ON/OFF) at the time AUTOMATE DOMOTIQUE is looking at it.

**X-10 Sequence** - Up to 6 X-10 commands within a specified time window.

## Appendix A - Location

City	State	Latitude	Longitude
Birmingham	Alabama	33 N	86 W
Dothan	Alabama	31 N	85 W
Huntsville	Alabama	34 N	86 W
Mobile	Alabama	30 N	88 W
Montgomery	Alabama	32 N	86 W
Adak Island	Alaska	51 N	176 W
Anchorage	Alaska	61 N	149 W
Fairbanks	Alaska	64 N	147 W
Juneau	Alaska	58 N	134 W
Nome	Alaska	64 N	165 W
Point Barrow	Alaska	71 N	156 W
Flagstaff	Arizona	35 N	111 W
Phoenix	Arizona	33 N	112 W
Tucson	Arizona	32 N	110 W
Yuma	Arizona	32 N	114 W
Fort Smith	Arkansas	35 N	94 W
Jonesboro	Arkansas	35 N	90 W
Little Rock	Arkansas	34 N	92 W
Texarkana	Arkansas	33 N	94 W
Bakersfield	California	35 N	119 W
Bishop	California	37 N	118 W
Eureka	California	40 N	124 W
Fresno	California	36 N	119 W
Long Beach	California	33 N	118 W
Los Angeles	California	34 N	118 W
Needles	California	34 N	114 W
Sacramento	California	38 N	121 W
San Bernardino	California	34 N	117 W
San Diego	California	32 N	117 W
San Francisco	California	37 N	122 W
San Jose	California	37 N	121 W
Santa Ana	California	33 N	117 W
Santa Barbara	California	34 N	119 W
Colorado Springs	Colorado	38 N	104 W
Denver	Colorado	39 N	104 W
Durango	Colorado	37 N	107 W
Grand Junction	Colorado	39 N	108 W
Greeley	Colorado	40 N	104 W
Pueblo	Colorado	38 N	104 W
Hartford	Connecticut	41 N	72 W
New Haven	Connecticut	41 N	72 W
New London	Connecticut	41 N	7 W
Stamford	Connecticut	41 N	73 W
Storrs	Connecticut	41 N	72 W
Washington	D.C	38 N	77 W
Dover	Delaware	39 N	75 W
Wilmington	Delaware	39 N	75 W
Copenhagen	Denmark	55 N	12 E
Ringkobing	Denmark	56 N	8 E
Gainesville	Florida	29 N	82 W
Jacksonville	Florida	30 N	81 W
Key West	Florida	24 N	81 W
Miami	Florida	25 N	80 W
Orlando	Florida	28 N	81 W
Pensacola	Florida	30 N	87 W
Tallahassee	Florida	30 N	84 W
Tampa	Florida	27 N	82 W
Albany	Georgia	31 N	84 W
Athens	Georgia	33 N	83 W
Atlanta	Georgia	33 N	84 W
Augusta	Georgia	33 N	81 W
Brunswick	Georgia	3 N	81 W
Columbus	Georgia	32 N	84 W
Macon	Georgia	32 N	83 W
Hilo	Hawaii	19 N	155 W
Honolulu	Hawaii	21 N	157 W
Kailua	Hawaii	19 N	156 W
Lihue	Hawaii	21 N	159 W
Wailuku	Hawaii	20 N	156 W
Boise	Idaho	43 N	116 W

City	State	Latitude	Longitude
Twin Falls	Idaho	42 N	114 W
Carbondale	Illinois	37 N	89 W
Champaign	Illinois	40 N	88 W
Chicago	Illinois	41 N	87 W
Decatur	Illinois	39 N	88 W
Joliet	Illinois	41 N	88 W
Peoria	Illinois	40 N	89 W
Quincy	Illinois	39 N	91 W
Rock Island	Illinois	41 N	90 W
Rockford	Illinois	42 N	89 W
Springfield	Illinois	39 N	89 W
Bloomington	Indiana	39 N	86 W
Evansville	Indiana	37 N	87 W
Fort Wayne	Indiana	41 N	85 W
Gary	Indiana	41 N	87 W
Indianapolis	Indiana	39 N	86 W
Marion	Indiana	40 N	85 W
Muncie	Indiana	40 N	85 W
South Bend	Indiana	41 N	86 W
West Lafayette	Indiana	40 N	86 W
Burlington	Iowa	40 N	91 W
Cedar Rapids	Iowa	41 N	91 W
Des Moines	Iowa	41 N	93 W
Dubuque	Iowa	42 N	90 W
Fort Dodge	Iowa	42 N	94 W
Mason City	Iowa	43 N	93 W
Sioux City	Iowa	42 N	96 W
Waterloo	Iowa	42 N	92 W
Dodge City	Kansas	37 N	100 W
Salina	Kansas	38 N	97 W
Topeka	Kansas	39 N	95 W
Wichita	Kansas	37 N	97 W
Ashland	Kentucky	38 N	82 W
Bowling Green	Kentucky	36 N	86 W
Frankfort	Kentucky	38 N	84 W
Hazard	Kentucky	37 N	83 W
Lexington	Kentucky	38 N	84 W
Louisville	Kentucky	38 N	85 W
Middlesboro	Kentucky	36 N	83 W
Owensboro	Kentucky	37 N	87 W
Paducah	Kentucky	37 N	88 W
Alexandria	Louisiana	31 N	92 W
Baton Rouge	Louisiana	30 N	91 W
Monroe	Louisiana	32 N	92 W
New Orleans	Louisiana	29 N	90 W
Shreveport	Louisiana	32 N	93 W
Augusta	Maine	44 N	69 W
Bangor	Maine	44 N	68 W
Portland	Maine	43 N	70 W
Boston	Massachusetts	42 N	71 W
Lawrence	Massachusetts	42 N	71 W
New Bedford	Massachusetts	41 N	70 W
Pittsfield	Massachusetts	42 N	73 W
Provincetown	Massachusetts	42 N	70 W
Springfield	Massachusetts	42 N	72 W
Worcester	Massachusetts	42 N	71 W
Annapolis	Maryland	38 N	76 W
Baltimore	Maryland	39 N	76 W
Cumberland	Maryland	39 N	78 W
Salisbury	Maryland	38 N	75 W
Ann Arbor	Michigan	42 N	83 W
Boyer City	Michigan	43 N	85 W
Detroit	Michigan	42 N	83 W
Grand Rapids	Michigan	42 N	85 W
Kalamazoo	Michigan	42 N	85 W
Lansing	Michigan	42 N	84 W
Marquette	Michigan	46 N	87 W
Pontiac	Michigan	42 N	83 W
Port Huron	Michigan	42 N	82 W
Saginaw	Michigan	43 N	83 W
Traverse City	Michigan	44 N	85 W
Bemidji	Minnesota	47 N	94 W
Duluth	Minnesota	46 N	92 W
International Falls	Minnesota	48 N	93 W

## Locations

City	State	Latitude	Longitude	City	State	Latitude	Longitude
Rochester	Minnesota	44 N	92 W	Dayton	Ohio	39 N	84 W
Saint Cloud	Minnesota	45 N	94 W	Lima	Ohio	40 N	84 W
Saint Paul	Minnesota	44 N	93 W	Mansfield	Ohio	40 N	82 W
Jackson	Mississippi	32 N	90 W	Toledo	Ohio	41 N	83 W
Meridian	Mississippi	32 N	88 W	Youngstown	Ohio	41 N	80 W
Natchez	Mississippi	31 N	91 W	Ardmore	Oklahoma	34 N	97 W
Oxford	Mississippi	34 N	89 W	Oklahoma City	Oklahoma	35 N	97 W
Cape Girardeau	Missouri	37 N	89 W	Tulsa	Oklahoma	36 N	95 W
Columbia	Missouri	38 N	92 W	Astoria	Oregon	46 N	123 W
Jefferson City	Missouri	38 N	92 W	Baker	Oregon	44 N	117 W
Joplin	Missouri	37 N	94 W	Coos Bay	Oregon	43 N	124 W
Kansas City	Missouri	39 N	94 W	Eugene	Oregon	44 N	123 W
Poplar Bluff	Missouri	36 N	90 W	Klamath Falls	Oregon	42 N	121 W
Saint Louis	Missouri	38 N	90 W	Portland	Oregon	45 N	122 W
Springfield	Missouri	37 N	93 W	Salem	Oregon	44 N	123 W
Billings	Montana	45 N	108 W	Allentown	Pennsylvania	40 N	75 W
Butte	Montana	46 N	112 W	Erie	Pennsylvania	42 N	89 W
Great Falls	Montana	47 N	111 W	Harrisburg	Pennsylvania	40 N	76 W
Havre	Montana	48 N	109 W	Oil City	Pennsylvania	41 N	79 W
Helena	Montana	46 N	112 W	Philadelphia	Pennsylvania	39 N	75 W
Missoula	Montana	46 N	114 W	Pittsburgh	Pennsylvania	40 N	80 W
Lincoln	Nebraska	40 N	96 W	Scranton	Pennsylvania	41 N	75 W
North Platte	Nebraska	41 N	100 W	State College	Pennsylvania	40 N	77 W
Omaha	Nebraska	41 N	96 W	Williamsport	Pennsylvania	41 N	77 W
Scottsbluff	Nebraska	41 N	103 W	Providence	Rhode Island	41 N	71 W
Amsterdam	Netherlands	52 N	4 E	Charleston	South Carolina	32 N	79 W
Rotterdam	Netherlands	51 N	4 E	Columbia	South Carolina	34 N	81 W
Carson City	Nevada	39 N	119 W	Greenville	South Carolina	34 N	82 W
Elko	Nevada	40 N	115 W	Aberdeen	South Dakota	45 N	98 W
Ely	Nevada	39 N	114 W	Pierre	South Dakota	44 N	100 W
Las Vegas	Nevada	36 N	115 W	Rapid City	South Dakota	44 N	103 W
Berlin	New Hampshire	44 N	71 W	Sioux Falls	South Dakota	43 N	96 W
Concord	New Hampshire	43 N	71 W	Chattanooga	Tennessee	35 N	85 W
Manchester	New Hampshire	43 N	71 W	Jackson	Tennessee	35 N	88 W
Atlantic City	New Jersey	39 N	74 W	Knoxville	Tennessee	35 N	83 W
Cape May	New Jersey	38 N	74 W	Memphis	Tennessee	35 N	90 W
Long Branch	New Jersey	40 N	74 W	Nashville	Tennessee	36 N	86 W
Newton	New Jersey	41 N	74 W	Oak Ridge	Tennessee	36 N	84 W
Trenton	New Jersey	40 N	74 W	Union City	Tennessee	36 N	89 W
Albuquerque	New Mexico	35 N	106 W	Amarillo	Texas	35 N	101 W
Clovis	New Mexico	34 N	103 W	Austin	Texas	30 N	97 W
Gallup	New Mexico	35 N	108 W	Beaumont	Texas	30 N	94 W
Roswell	New Mexico	33 N	104 W	Brownsville	Texas	25 N	97 W
Santa Fe	New Mexico	35 N	105 W	Corpus Christi	Texas	27 N	97 W
Albany	New York	42 N	73 W	Dallas	Texas	32 N	96 W
Binghamton	New York	42 N	75 W	El Paso	Texas	31 N	106 W
Buffalo	New York	42 N	78 W	Houston	Texas	29 N	95 W
Ithaca	New York	42 N	76 W	Lubbock	Texas	33 N	101 W
Massena	New York	44 N	74 W	San Angelo	Texas	31 N	100 W
New York	New York	40 N	74 W	San Antonio	Texas	29 N	98 W
Olean	New York	42 N	78 W	Wichita Falls	Texas	33 N	98 W
Poughkeepsie	New York	41 N	73 W	Cedar City	Utah	37 N	113 W
Rochester	New York	43 N	77 W	Provo	Utah	40 N	111 W
Syracuse	New York	43 N	76 W	Salt Lake City	Utah	40 N	111 W
Utica	New York	43 N	75 W	Bennington	Vermont	42 N	73 W
Watertown	New York	43 N	75 W	Burlington	Vermont	44 N	73 W
Asheville	North Carolina	35 N	82 W	Montpelier	Vermont	44 N	72 W
Charlotte	North Carolina	35 N	80 W	Rutland	Vermont	43 N	72 W
Fayetteville	North Carolina	35 N	78 W	Bluefield	Virginia	37 N	81 W
Kitty Hawk	North Carolina	36 N	75 W	Bristol	Virginia	36 N	82 W
New Bern	North Carolina	35 N	7 W	Charlottesville	Virginia	38 N	78 W
Raleigh	North Carolina	35 N	78 W	Chincoteague	Virginia	37 N	75 W
Wilmington	North Carolina	34 N	77 W	Lynchburg	Virginia	37 N	79 W
Winston-Salem	North Carolina	36 N	80 W	Norfolk	Virginia	36 N	76 W
Bismarck	North Dakota	46 N	100 W	Richmond	Virginia	37 N	77 W
Fargo	North Dakota	46 N	96 W	Roanoke	Virginia	37 N	79 W
Grand Forks	North Dakota	47 N	97 W	Staunton	Virginia	38 N	79 W
Minot	North Dakota	48 N	101 W	Winchester	Virginia	39 N	78 W
Williston	North Dakota	48 N	103 W	Olympia	Washington	47 N	122 W
Akron	Ohio	41 N	81 W	Pullman	Washington	46 N	117 W
Canton	Ohio	40 N	81 W	Seattle	Washington	47 N	122 W
Cincinnati	Ohio	39 N	84 W	Spokane	Washington	47 N	117 W
Cleveland	Ohio	41 N	81 W	Walla Walla	Washington	46 N	118 W
Columbus	Ohio	39 N	83 W				

## Locations

City	State	Latitude	Longitude
Yakima	Washington	46 N	120 W
Charleston	West Virginia	38 N	81 W
Clarksburg	West Virginia	39 N	80 W
Parkersburg	West Virginia	39 N	81 W
Wheeling	West Virginia	40 N	80 W
Eau Claire	Wisconsin	44 N	91 W
Green Bay	Wisconsin	44 N	88 W
La Crosse	Wisconsin	43 N	91 W
Madison	Wisconsin	43 N	89 W
Milwaukee	Wisconsin	43 N	87 W
Oshkosh	Wisconsin	44 N	88 W
Wausau	Wisconsin	44 N	89 W
Casper	Wyoming	42 N	106 W
Cheyenne	Wyoming	41 N	104 W
Rock Springs	Wyoming	41 N	109 W
Sheridan	Wyoming	44 N	106 W

City	Country	Latitude	Longitude
Tirane	Albania	41 N	19 E
Calgary	Alberta	51 N	114 W
Edmonton	Alberta	53 N	113 W
Medicine Hat	Alberta	50 N	110 W
Algiers	Algeria	36 N	3 E
Annaba	Algeria	36 N	7 E
Bechar	Algeria	31 N	2 W
Oran	Algeria	35 N	0 W
Tamanrasset	Algeria	22 N	5 E
Tindouf	Algeria	27 N	8 W
Andorra	Andorra	42 N	1 E
Bahia Blanca	Argentina	38 S	62 W
Buenos Aires	Argentina	34 S	58 W
Cordoba	Argentina	31 S	64 W
Corrientes	Argentina	27 S	58 W
Mar del Plata	Argentina	38 S	57 W
Rawson	Argentina	43 S	65 W
Rio Gallegos	Argentina	51 S	69 W
Salta	Argentina	24 S	65 W
Adelaide	Australia	34 S	138 E
Albany	Australia	35 S	117 E
Alice Springs	Australia	23 S	133 E
Ballarat	Australia	37 S	143 E
Brisbane	Australia	27 S	153 E
Broken Hill	Australia	31 S	141 E
Cairns	Australia	16 S	145 E
Canberra	Australia	35 S	149 E
Cape York	Australia	10 S	142 E
Carnarvon	Australia	24 S	113 E
Darwin	Australia	12 S	130 E
Derby	Australia	17 S	123 E
Eucla	Australia	31 S	128 E
Geraldton	Australia	28 S	114 E
Hobart	Australia	42 S	147 E
Kalgoorlie	Australia	30 S	121 E
Launceston	Australia	41 S	147 E
Lord Howe Island	Australia	31 S	159 E
Melbourne	Australia	37 S	145 E
Mount Isa	Australia	20 S	139 E
Newcastle Waters	Australia	17 S	133 E
Norfolk Island	Australia	29 S	1 E
Oodnadatta	Australia	27 S	135 E
Perth	Australia	31 S	115 E
Port Augusta	Australia	32 S	137 E
Port Hedland	Australia	20 S	118 E
Rockhampton	Australia	23 S	150 E
Sydney	Australia	33 S	151 E
Townsville	Australia	19 S	146 E
Wiluna	Australia	26 S	120 E
Yaraka	Australia	24 S	144 E
Graz	Austria	47 N	15 E
Innsbruck	Austria	47 N	11 E
Salzburg	Austria	47 N	13 E
Vienna	Austria	48 N	16 E
Freeport	Bahamas	26 N	78 W
Nassau	Bahamas	25 N	7 W
Antwerp	Belgium	51 N	4 E
Brussels	Belgium	50 N	4 E
Belmopan	Belize	17 N	88 W
Hamilton	Bermuda	32 N	64 W
Thimphu	Bhutan	27 N	89 E
La Paz	Bolivia	16 S	68 W
Santa Cruz	Bolivia	17 S	63 W
Sucre	Bolivia	19 S	65 W
Belem	Brazil	1 S	48 W
Belo Horizonte	Brazil	19 S	43 W
Brasilia	Brazil	15 S	47 W
Cruzeiro do Sul	Brazil	7 S	72 W
Cuiaba	Brazil	15 S	56 W
Fortaleza	Brazil	3 S	38 W
Porto Alegre	Brazil	30 S	51 W
Porto Velho	Brazil	8 S	63 W
Recife	Brazil	8 S	34 W
Rio de Janeiro	Brazil	22 S	43 W

## Locations

City	Country	Latitude	Longitude	City	Country	Latitude	Longitude
Salvador	Brazil	12 S	38 W	Port-au-Prince	Haiti	18 N	72 W
Santarem	Brazil	2 S	54 W	La Ceiba	Honduras	15 N	86 W
Sao Paulo	Brazil	23 S	46 W	Tegucigalpa	Honduras	14 N	87 W
Teresina	Brazil	5 S	42 W	Budapest	Hungary	47 N	19 E
Prince George	British Columbia	53 N	122 W	Szeged	Hungary	46 N	20 E
Prince Rupert	British Columbia	54 N	130 W	Akureyri	Iceland	65 N	18 W
Sydney	British Columbia	46 N	60 W	Reykjavik	Iceland	64 N	21 W
Vancouver	British Columbia	49 N	123 W	Ahmadabad	India	23 N	72 E
Victoria	British Columbia	48 N	123 W	Bangalore	India	12 N	77 E
Yaounde	Cameroon	3 N	11 E	Bhopal	India	23 N	77 E
Largeau	Chad	17 N	19 E	Bombay	India	18 N	72 E
Ndjamena	Chad	12 N	13 E	Calcutta	India	22 N	88 E
Barranquilla	Colombia	10 N	74 W	Gangtok	India	27 N	88 E
Bogota	Colombia	4 N	74 W	Hyderabad	India	17 N	78 E
Cali	Colombia	3 N	76 W	Kanpur	India	26 N	80 E
Medellin	Colombia	6 N	75 W	Nagpur	India	21 N	79 E
Limon	Costa Rica	10 N	83 W	New Delhi	India	28 N	77 E
San Jose	Costa Rica	9 N	84 W	Srinagar	India	34 N	74 E
Guantanamo	Cuba	20 N	75 W	Ambon	Indonesia	3 S	128 E
Havana	Cuba	23 N	82 W	Banjarmasin	Indonesia	3 S	114 E
Willemstad	Curacao	12 N	68 W	Denpasar	Indonesia	8 S	115 E
Nicosia	Cyprus	35 N	33 E	Dili	Indonesia	8 S	125 E
Kosice	Czechoslovakia	48 N	21 E	Jakarta	Indonesia	6 S	106 E
Prague	Czechoslovakia	50 N	14 E	Manado	Indonesia	1 N	124 E
Santo Domingo	Dominican Republic	18 N	69 W	Medan	Indonesia	3 N	98 E
Alexandria	Egypt	31 N	29 E	Palembang	Indonesia	2 S	104 E
As Sallum	Egypt	31 N	25 E	Pontianak	Indonesia	0 S	109 E
Aswan	Egypt	24 N	32 E	Sorong	Indonesia	0 S	131 E
Cairo	Egypt	30 N	3 E	Surabaya	Indonesia	7 S	112 E
Port Said	Egypt	31 N	32 E	Ujungpandang	Indonesia	5 S	119 E
Suez	Egypt	29 N	32 E	Yogyakarta	Indonesia	7 S	110 E
San Salvador	El Salvador	13 N	89 W	Abadan	Iran	30 N	48 E
Helsinki	Finland	60 N	24 E	Esfahan	Iran	32 N	51 E
Kemi	Finland	65 N	24 E	Mashhad	Iran	36 N	59 E
Ajaccio	France	41 N	8 E	Shiraz	Iran	29 N	52 E
Bordeaux	France	44 N	0 W	Tabriz	Iran	38 N	46 E
Brest	France	48 N	4 W	Tehran	Iran	35 N	51 E
Calais	France	50 N	1 E	Al Basrah	Iraq	30 N	47 E
Dijon	France	47 N	5 E	Baghdad	Iraq	33 N	44 E
Le Havre	France	49 N	0 E	Mosul	Iraq	36 N	43 E
Limoges	France	45 N	1 E	Cork	Ireland	51 N	8 W
Lyon	France	45 N	5 E	Dublin	Ireland	53 N	6 W
Marseilles	France	43 N	5 E	Limerick	Ireland	52 N	8 W
Nantes	France	47 N	1 W	Eilat	Israel	29 N	34 E
Paris	France	48 N	2 E	Haifa	Israel	32 N	35 E
Strasbourg	France	48 N	7 E	Jerusalem	Israel	31 N	35 E
Toulouse	France	43 N	1 E	Tel Aviv	Israel	32 N	34 E
Cayenne	French Guiana	4 N	52 W	Bari	Italy	41 N	16 E
Savannah	Georgia	32 N	81 W	Castellon	Italy	39 N	9 E
Bonn	Germany	50 N	7 E	Florence	Italy	43 N	11 E
Braunschweig	Germany	52 N	10 E	Genoa	Italy	44 N	8 E
Dresden	Germany	51 N	13 E	Messina	Italy	38 N	15 E
Frankfurt am Main	Germany	50 N	8 E	Milan	Italy	45 N	9 E
Hamburg	Germany	53 N	10 E	Naples	Italy	40 N	14 E
Hannover	Germany	52 N	9 E	Palermo	Italy	39 N	13 E
Leipzig	Germany	51 N	12 E	Rome	Italy	41 N	12 E
Magdeburg	Germany	52 N	11 E	Turin	Italy	45 N	7 E
Munich	Germany	48 N	11 E	Venice	Italy	45 N	12 E
Nuremberg	Germany	49 N	11 E	Kingston	Jamaica	18 N	76 W
Rostock	Germany	54 N	12 E	Fukuoka	Japan	33 N	130 E
Stuttgart	Germany	48 N	9 E	Hakodate	Japan	41 N	140 E
Weimar	Germany	50 N	11 E	Hiroshima	Japan	34 N	132 E
Berlin	Germany	52 N	13 E	Iwo Jima Island	Japan	24 N	141 E
Alexandroupolis	Greece	40 N	25 E	Kyoto	Japan	35 N	135 E
Athens	Greece	37 N	24 E	Nagasaki	Japan	32 N	129 E
Iraklion	Greece	35 N	25 E	Nagoya	Japan	35 N	136 E
Kerkira	Greece	39 N	19 E	Osaka	Japan	34 N	135 E
Rhodes	Greece	36 N	28 E	Sapporo	Japan	43 N	141 E
Thessaloniki	Greece	40 N	22 E	Sendai	Japan	38 N	140 E
Godthab	Greenland	64 N	51 W	Tokyo	Japan	35 N	139 E
Saint George's	Grenada	12 N	61 W	Amman	Jordan	31 N	35 E
Basse-Terre	Guadeloupe	16 N	61 W	Mombasa	Kenya	4 S	39 E
Guatemala City	Guatemala	14 N	90 W	Nairobi	Kenya	1 S	36 E
Conakry	Guinea	9 N	13 W	Kuwait	Kuwait	29 N	47 E

## Locations

City	Country	Latitude	Longitude	City	Country	Latitude	Longitude
Pakxe	Laos	15 N	105 E	Truro	Nova Scotia	45 N	63 W
Vientiane	Laos	17 N	102 E	Yarmouth	Nova Scotia	43 N	66 W
Riga	Latvia	56 N	24 E	Fort Severn	Ontario	55 N	87 W
Beirut	Lebanon	33 N	35 E	Kenora	Ontario	49 N	94 W
Tripoli	Lebanon	34 N	35 E	Moosonee	Ontario	51 N	80 W
Maseru	Lesotho	29 S	27 E	Ottawa	Ontario	45 N	75 W
Monrovia	Liberia	6 N	10 W	Sudbury	Ontario	46 N	81 W
Brest	Lithuania	52 N	23 E	Thunder Bay	Ontario	48 N	89 W
Vilnius	Lithuania	54 N	25 E	Toronto	Ontario	43 N	79 W
Luxembourg	Luxembourg	49 N	6 E	Windsor	Ontario	42 N	83 W
Palma	Majorca	39 N	2 E	Colon	Panama	9 N	79 W
Blantyre	Malawi	15 S	35 E	David	Panama	8 N	82 W
Lilongwe	Malawi	13 S	33 E	Panama	Panama	8 N	79 W
Kuala Lumpur	Malaysia	3 N	101 E	Asuncion	Paraguay	25 S	57 W
Kuching	Malaysia	1 N	110 E	Peru	Peru	16 S	71 W
Pinang	Malaysia	5 N	100 E	Cuzco	Peru	13 S	71 W
Churchill	Manatoba	58 N	94 W	Iquitos	Peru	3 S	73 W
Norway House	Manatoba	53 N	97 W	Lima	Peru	12 S	7 W
Winnipeg	Manitoba	49 N	97 W	Trujillo	Peru	8 S	79 W
Acapulco	Mexico	16 N	99 W	Baguio	Philippines	16 N	120 E
Cancun	Mexico	21 N	86 W	Cebu	Philippines	10 N	123 E
Chihuahua	Mexico	28 N	106 W	Davao	Philippines	7 N	125 E
Ciudad Juarez	Mexico	31 N	106 W	Iloilo	Philippines	10 N	122 E
Durango	Mexico	24 N	104 W	Manila	Philippines	14 N	121 E
Guadalajara	Mexico	20 N	103 W	Naga	Philippines	13 N	123 E
Hermosillo	Mexico	29 N	110 W	Subic	Philippines	14 N	120 E
La Paz	Mexico	24 N	110 W	Zamboanga	Philippines	6 N	122 E
Mazatlan	Mexico	23 N	106 W	Gdansk	Poland	54 N	18 E
Merida	Mexico	20 N	89 W	Krakow	Poland	50 N	19 E
Mexico City	Mexico	19 N	99 W	Poznan	Poland	52 N	16 E
Monterrey	Mexico	25 N	100 W	Warsaw	Poland	52 N	21 E
Tijuana	Mexico	32 N	117 W	Lisbon	Portugal	38 N	9 W
Veracruz	Mexico	19 N	96 W	Porto	Portugal	41 N	8 W
Monte Carlo	Monaco	43 N	7 E	Ponce	Puerto Rico	18 N	66 W
Plymouth	Montserrat	16 N	62 W	San Juan	Puerto Rico	18 N	66 W
Casablanca	Morocco	33 N	7 W	Fort Chimo	Quebec	58 N	68 W
El Aaiun	Morocco	27 N	13 W	Gaspe	Quebec	48 N	64 W
Marrakech	Morocco	31 N	8 W	Hull	Quebec	45 N	75 W
Tangier	Morocco	35 N	5 W	Ivugivik	Quebec	62 N	77 W
Campbellton	New Brunswick	48 N	66 W	Montreal	Quebec	45 N	73 W
Chatham	New Brunswick	47 N	65 W	Quebec	Quebec	46 N	71 W
Moncton	New Brunswick	46 N	64 W	Rouyn	Quebec	48 N	79 W
Saint John	New Brunswick	45 N	66 W	Schefferville	Quebec	54 N	66 W
Auckland	New Zealand	36 S	174 E	Prince Albert	Saskatchewan	53 N	105 W
Auckland Islands	New Zealand	50 S	166 E	Regina	Saskatchewan	50 N	104 W
Christchurch	New Zealand	43 S	172 E	Saskatoon	Saskatchewan	52 N	106 W
Dunedin	New Zealand	45 S	170 E	Uranium City	Saskatchewan	59 N	108 W
Gisborne	New Zealand	38 S	178 E	Dhahran	Saudi Arabia	26 N	5 E
Hamilton	New Zealand	37 S	175 E	Mecca	Saudi Arabia	21 N	39 E
Invercargill	New Zealand	46 S	168 E	Medina	Saudi Arabia	24 N	39 E
Milford Sound	New Zealand	44 S	167 E	Riyadh	Saudi Arabia	24 N	46 E
Nelson	New Zealand	41 S	173 E	Bloemfontein	South Africa	29 S	26 E
New Plymouth	New Zealand	39 S	174 E	Cape Town	South Africa	33 S	18 E
Palmerston North	New Zealand	40 S	175 E	Durban	South Africa	29 S	31 E
Wellington	New Zealand	41 S	174 E	Johannesburg	South Africa	26 S	28 E
Whangarei	New Zealand	35 S	174 E	Port Elizabeth	South Africa	33 S	25 E
Corner Brook	Newfoundland	48 N	57 W	Pretoria	South Africa	25 S	28 E
Fredericton	Newfoundland	45 N	66 W	Pusan	South Korea	35 N	129 E
Gander	Newfoundland	48 N	54 W	Seoul	South Korea	37 N	127 E
Saint John's	Newfoundland	47 N	52 W	Barcelona	Spain	41 N	2 E
Pyongyang	North Korea	39 N	125 E	Bilbao	Spain	43 N	2 W
Cambridge Bay	NW Territories	69 N	105 W	Granada	Spain	37 N	3 W
Coppermine	NW Territories	67 N	115 W	La Coruna	Spain	43 N	8 W
Frobisher Bay	NW Territories	63 N	68 W	Madrid	Spain	40 N	3 W
Inuvik	NW Territories	68 N	133 W	Seville	Spain	37 N	5 W
Yellowknife	NW Territories	62 N	114 W	Valencia	Spain	39 N	0 W
Bergen	Norway	60 N	5 E	Zaragoza	Spain	41 N	0 W
Bodo	Norway	67 N	14 E	Colombo	Sri Lanka	6 N	79 E
Narvik	Norway	68 N	17 E	Jaffna	Sri Lanka	9 N	80 E
Oslo	Norway	59 N	10 E	Goteborg	Sweden	57 N	11 E
Trondheim	Norway	63 N	10 E	Kiruna	Sweden	67 N	20 E
Amherst	Nova Scotia	45 N	64 W	Stockholm	Sweden	59 N	18 E
Halifax	Nova Scotia	44 N	63 W	Sundsvall	Sweden	62 N	17 E
Kingston	Nova Scotia	44 N	76 W	Bern	Switzerland	46 N	7 E

## Locations

<b>City</b>	<b>Country</b>	<b>Latitude</b>	<b>Longitude</b>
Geneva	Switzerland	46 N	6 E
Zurich	Switzerland	47 N	8 E
Al Qamishli	Syria	37 N	41 E
Allepo	Syria	36 N	37 E
Damascus	Syria	33 N	36 E
Kaohsiung	Taiwan	22 N	120 E
Taipei	Taiwan	25 N	121 E
Bangkok	Thailand	13 N	100 E
Chiang Mai	Thailand	18 N	98 E
Adana	Turkey	37 N	35 E
Ankara	Turkey	39 N	32 E
Canakkale	Turkey	40 N	26 E
Erzurum	Turkey	39 N	41 E
Istanbul	Turkey	41 N	28 E
Izmir	Turkey	38 N	27 E
Samsun	Turkey	41 N	36 E
Charlotte Amalie	Virgin Islands	18 N	64 W
Christiansted	Virgin Islands	17 N	64 W
Midway Islands	USA	28 N	177 W
Aberdeen	United Kingdom	57 N	2 W
Belfast	United Kingdom	54 N	5 W
Birmingham	United Kingdom	52 N	1 W
Cardiff	United Kingdom	51 N	3 W
Edinburgh	United Kingdom	55 N	3 W
Glasgow	United Kingdom	55 N	4 W
Inverness	United Kingdom	57 N	4 W
Lerwick	United Kingdom	60 N	1 W
Liverpool	United Kingdom	53 N	3 W
London	United Kingdom	51 N	0 W
Londonderry	United Kingdom	55 N	7 W
Plymouth	United Kingdom	50 N	4 W
Portsmouth	United Kingdom	50 N	1 W
York	United Kingdom	53 N	1 W
Montevideo	Uruguay	34 S	56 W
Caracas	Venezuela	10 N	66 W
Ciudad Bolivia	Venezuela	8 N	70 W
Maracaibo	Venezuela	10 N	71 W
Dawson	Yukon Territory	64 N	139 W
Dawson Creek	Yukon Territory	55 N	120 W
Old Crow	Yukon Territory	67 N	139 W
Watson Lake	Yukon Territory	60 N	128 W
Whitehorse	Yukon Territory	60 N	135 W

## Appendix B - Examples

The following examples are from actual Schedules.

### Example 25 Toggle lights ON and OFF for 10 minutes after the security system is tripped

```
EVENT: Start Timer
If
/* L1 is connected to alarm output */
(XSEQ: L-1 L-ON ) Received within 3 seconds
Then
(T:Alarm Timer) LOAD with 0:10:00
(XCMD:A-7 A-ON)
End

EVENT: Toggle Security Lights
If
(X:A-7) is ON
and (T:Alarm Timer) is Running
Then
(XCMD:A-7 A-OFF)
Else
(XCMD:A-7 A-ON)
End
```

---

**Note during the time the lights are toggling ON and OFF, the X -10 network may become saturated by the repeated ON/OFF commands and AUTOMATE DOMOTIQUE may not see other X -10 transmissions! It may be necessary to put a delay statement in the THEN section to allow time for other X-10 transmissions.**

---

### Example 26 Using the modem to call a Pager number

```
EVENT: Call Pager Number
If
(XSEQ: P-1 P-ON P-1 P-ON) Received within 6 seconds
Then
/* Call Bob's pager, display 1234 */
ASCII-Out: 'ATDT555-1212,,,1234'
End
```

Note this example assumes AUTOMATE DOMOTIQUE is connected to a modem as shown in the Modem Section of the manual.

### Example 27 Setup a smart answer Modem

```
EVENT: Smart Answer Modem Pickup
If
ASCII-In: 'RING'
/* Have Modem pickup if 2 rings, */
/* followed by no rings for 20 sec, */
/* and 1 ring between 20 and 60 sec */
/* Set remote modem to answer on 0 rings */
Then
(V:RingCount) INCREMENT
-If
| (V:RingCount) is Equal to 1
|Then
| (T:RingMin) LOAD with 0:00:10
-End
-If
| (V:RingCount) is Equal to 2
|Then
| -If
| | (T:RingMin) is Running
| | /* 2nd ring within 10 seconds? */
| |Then
```

```

| | /* Load the min and max times for */
| | /* the 3rd ring to fall between */
| | (T:RingMin) LOAD with 0:00:20
| | (T:RingMax) LOAD with 0:00:59
| |Else
| | /* Nope, rang after 10 seconds */
| | (V:RingCount) CLEAR
| -End
-End
-If
| (V:RingCount) is Equal to 3
|Then
| -If
| | (T:RingMin) is Stopped
| | and (T:RingMax) is Running
| | /* 3rd ring between min and max? */
| |Then
| | (V:RingCount) CLEAR
| | ASCII-Out: 'ATA'
| |Else
| | (V:RingCount) CLEAR
| -End
-End
-If
| (V:RingCount) is Greater than 3
| /* If RingCount goes over 3, clear */
|Then
| (V:RingCount) CLEAR
-End
End

EVENT: Clear RingCount if maxtimeout
If
(T:RingMax) is Expiring
/* If no 3rd ring before max time */
/* times out, clear RingCount */
Then
(V:RingCount) CLEAR
End

```

If you use a modem with AUTOMATE DOMOTIQUE and have to share a line with an answering machine, the normal answering mode will not work. If you set the answering machine to answer on fewer number of rings than AUTOMATE DOMOTIQUE, you'll never connect with AUTOMATE DOMOTIQUE. The same goes for the opposite, if AUTOMATE DOMOTIQUE answers on fewer rings than your answering machine, you'll never record any calls.

Example 3 shows how AUTOMATE DOMOTIQUE can tell the modem to pick up the line after a certain pattern of rings and pauses, thus bypassing an answering machine. This example assumes the answering machine will pick up on the 4th ring.

If 2 rings are detected within 10 seconds, followed by a 20 second period with no rings, AUTOMATE DOMOTIQUE will instruct the modem to pickup if 1 more ring occurs before the maximum timeout.

## Appendix C - Trouble Shooting

### BEFORE YOU CALL...

The following pages describe the most common questions posed to Technical Support. Each symptom is followed by the most common cause for each problem. Before calling Technical Support for further assistance, please try the list of suggestions that relate to your problem.

Once you have tried the suggestions and the symptom persists, be ready with the following information when calling Technical Support:

1. Be at your PC and have Event Manager running.
2. The firmware and Event Manager versions.
3. Firmware version is reported by selecting **Utility | System Info** and Event Manager version by selecting **HELP | ABOUT**.
4. The type of PC you are using: 386, 486, Pentium.
5. A short description of the problem and any error messages that appear.

If you decide to contact us by fax or email, please include the information requested above. The more information you include about the symptom, the easier it is for us to respond quickly and as accurately as possible. Don't forget to include your return fax number, including area code!

### I keep getting Communication Errors

Check that you have the correct serial port selected. Also check that the AUTOMATE DOMOTIQUE is connected properly.

Make sure that this serial port is not in contention with another serial port. Note that com1 and com3 share an interrupt and com2 and com4 share an interrupt. This means that if AUTOMATE DOMOTIQUE is connected to com1, you cannot be using another serial device on com3, such as a mouse. If this is the case, change the serial port that AUTOMATE DOMOTIQUE is connected to and change the serial port options.

### When I look at 'System Info' my longitude and latitude are wrong

You must change the Time Parameters in the UTILITIES | TIME/DATE SET menu for AUTOMATE DOMOTIQUE to know your location.

### The SunRise and SunSet calculations are wrong

Make sure you have the correct longitude, latitude and Time Zone for your location listed in the TIME/DATE SET menu. This information is used to calculate the correct SunRise and SunSet times.

### My Mouse does not work with Event Manager

If you have a serial mouse, check that it is not using the same serial port that Event Manager uses to communicate to AUTOMATE DOMOTIQUE. They cannot use both com1 and com3, or com2 and com4 because com1/com3 share the same interrupt and com2/com4 share the same interrupt. You must use either com1 and com2, or com3 and com4 for the mouse and AUTOMATE DOMOTIQUE respectfully.

**I have a Mouse but I don't see the Mouse cursor**

Event Manager checks your system to see if a mouse driver is loaded. If no mouse driver is loaded, Event Manger will disable the mouse so you would not see a mouse cursor. Check your config.sys file to maker sure you are loading your mouse driver.

**Problems in Communication**

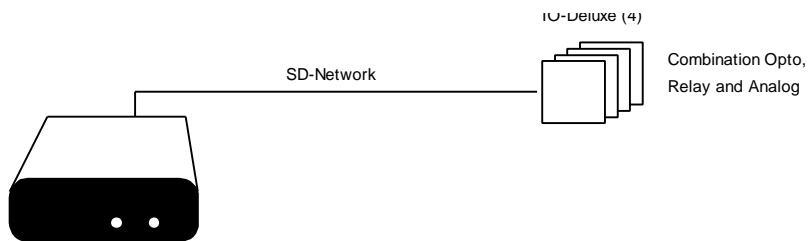
Check the following if you have trouble using the Com Port while using WinEVM:

1. Make sure you have specified the correct Com port.
2. Windows cannot support shared hardware interrupts. Since COM1 and COM3 (also COM2 and COM4) share the same interrupts, you cannot have one serial device installed on COM1 and the other device installed on COM3 (or one device on COM2 and another on COM4).
3. If you have an external modem, check that it is connected to a serial port. If you have an internal modem, check the switch setting (on the board) to ensure that it is assigned to the appropriate COM port.
4. Select the Serial Port option from the System menu to check that your specification of the COM port is correct. If you cannot start WinEVM, use an editor to display the C:\WINDOWS\WINEVM.INI file. There is a line under the section entitled [WinEVM] that should appear as: COMPORT = n , where n = 1 to 4.
5. There are a number of TSR (Terminate and Stay Resident) programs that are provided with voice fax modem boards. If you have installed another software package that utilizes your board, make sure this program is not running when you start Windows and SuperVoice. If it is still running, it will assume control of the Com Port and no other programs will have access to this port. Check your AUTOEXEC.BAT file to ensure that the program is not loaded during the boot up routine. Creating your own Modular Data Cables

## Appendix E - IO Reference

### System Overview

Your Automate Domotique or Automate Domotique PRO has the built in ability to interface to IO expansion devices. These devices can be IO-Xpander and IR-Xpander devices.



To use IO-Xpander's in your schedule, follow these steps:

1. Install the IO-Xpander
2. Set the proper IO-Xpander Address
3. Connect the SD-Net cable
4. Select Define | IR & IO-Xpander from the main menu.
5. Use the defined IO in your schedule

### Definition of Terms

You should understand the meaning of a number of terms used throughout this manual before you proceed.

- ⚡ Automate Domotique PRO - 16 opto inputs, 8 relay outputs, 8 A/D inputs
- ⚡ IO-Xpander - IO-Xpander, 16 opto inputs, 8 relay outputs, 8 A/D inputs
- ⚡ SD-Net - Short Distance Network, max length 20 feet.

### Getting Started

#### Installing the IO-Xpander

Take an inventory of accessories included. You should have the following:

- ⚡ IO-Xpander
- ⚡ Plug-In Power Supply
- ⚡ 7ft SD-Net cable
- ⚡ 1ft SD-Net cable
- ⚡ SD-Net "T" Adapter

### Locating the IO-Xpander

Mount the IO-Xpander in a location that will be close to the Automate Domotique and close to an AC power supply. Remember that the maximum SD-Net length is limited to 20 feet. Many people prefer to mount a sheet of plywood in a closet or basement where the IO-Xpander's will be installed. Remember that you will need to run wires from sensors and other devices, so choose a convenient location.

Don't forget you'll need to connect a PC to the Automate Domotique or Automate Domotique PRO for programming, so there should be either a PC nearby, a laptop available, or a serial cable run from your PC to Automate Domotique. Keep in mind that if you need a longer cable run for the RS-232 connection between your PC and Automate Domotique, the cable should be less than 50 feet long and kept away from noise sources like motors, transformers and power lines in general.

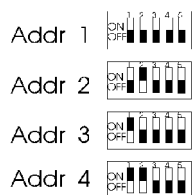
### Power Supplies

IO-Xpander's require +12vDC. Use the supplied power transformer to power the IO-Xpander.

### Setting the IO-Xpander Address

You can have up to 4 IO-Xpander's on the SD-Net. The address is set using the DIP switch located on the IO-Xpander. Note that assigning the same address to IO-Xpander's of the same kind will not cause any damage, but the network will not work right.

Setting the address is the same for all types of IO-Xpander's and is shown in the diagram below.



### Connecting the SD-Net Cable

Care must be taken when running the SD-Net cable to ensure error-free operation of the network. When installing the cabling, be sure the cable is at least six inches away from any AC power line. NEVER install the network cable in the same conduit as AC power line cable.

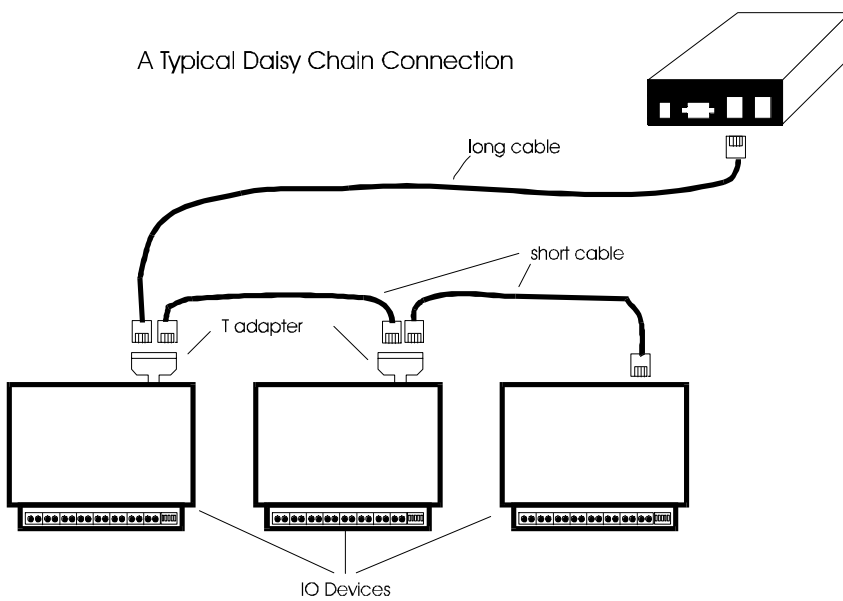
Connecting the IO-Xpander to the SD-Net is done with the supplied cables. Note that the total length of the SD-Net cannot be more than 20 feet.

Follow these steps when installing a networked IO-Xpander:

1. Verify the address of the IO-Xpander being installed is correct
2. Make sure the power is off or unplugged to the Automate Domotique or Automate Domotique PRO
3. Connect the SD-Net cable to the Automate Domotique or Automate Domotique PRO jack labeled "AUX"
4. Connect the other end of the SD-Net cable to the IO-Xpander jack labeled "AUX"
5. Connect the power to the IO-Xpander then the Automate Domotique or Automate Domotique PRO

After the Automate Domotique powers-up and goes through it's initialization, the device needs to be enabled. Select the Define | IR & IO Device menu choice. Check the boxes to the right of every device that is being used. Press the OK button and Automate Domotique will enable the IO devices. You should see the IO-Xpander's LED turn on and start to flash (it may flash so rapidly that the LED may appear to be ON). If the LED does not come on, verify that the IO-Xpander is powered and the SD-Net is connected properly. If the LED still does not come on, refer to the Troubleshooting section in the appendix of this manual.

It is recommended that multiple SD-Net connections be done in a `daisy-chain' fashion. This method can give you the maximum distance between the IO-Xpander's and Automate Domotique. Use the enclosed `T' adapters to daisy chain more than one IO-Xpander to the net.



## Defining your IO-Xpander

Before you can use any IO-Xpander's in your schedules, you need to define what IO-Xpander's are connected to the Automate Domotique through the SD-Net. See Define IO-Xpander on page 24.

## IO Trouble-shooting

- ?? The LED does not turn ON after plugging in the power: Make sure the SD-Net cable is plugged into the IO-Xpander and the Automate Domotique. Make sure the Automate Domotique is powered up.
- ?? Network Info does not list the IO-Xpander: Make sure the correct IO-Xpander number has been selected and is not the same as another IO-Xpander (of the same type). Reset the network and try Network Configure.
- ?? Errors are detected and shown with Network Stats: Make sure the SD-Net cables are connected properly. Verify the maximum SD-Net length is less than the maximum allowed.
- ?? IO-Xpander's do not seem to work in schedules: Make sure that the IO-Xpander has been setup correctly and that the Dip Switch address is correct. Try re-downloading the schedule and using the Mega-Controller, read the Inputs or try turning Relays ON/OFF. If the IO-Xpander can be accessed through the MegaController, Automate Domotique can communicate with it OK. Make sure the Event is written correctly, try putting in test cases such as an ASCII-Out line when a Relay is set (you can use the MegaController to look for the ASCII text when the Event is triggered).

## IO Specifications

### SD-Net Specifications

Maximum Length 20 feet Length of all cables used in SD-Net connections.

### Opto Inputs

Type Non-polarized opto-isolated (not TTL/CMOS compatible)  
 Quantity 16  
 Isolation 500 V channel-channel & channel-ground  
 Input Range 4-24 VDC or AC(50-1,000 Hz)  
 Input Resistance 470 ohms min  
 Response Time 100 microseconds typ, requires pulse width of 100 microseconds

### Relays

Contact rating 1A @ 24 VDC,  
 Contact type Gold overlay silver  
 Contact Resistance 100 milliohms max (Initial)  
 Contact Arrangement Channels 1-8 are SPDT  
 Operating time 20 milliseconds max  
 Release time 10 milliseconds max  
 Life rating Mechanical: 10 million operations min  
 Electrical: 100,000 min @ full load

### Analog Inputs

A/D Type Successive approximation  
 Resolution 8 bit (20mV/bit)  
 Input range 0-5 V(unipolar)  
 Quantity 8  
 Filtering none  
 Conversion time 20us typ, 30us max  
 Linearity +/- 1 bit  
 Accuracy 0.2% of reading +/- 1 bit  
 Configuration Single Ended  
 Input Current 100 nA max at 25 degree C  
 Temp coefficients

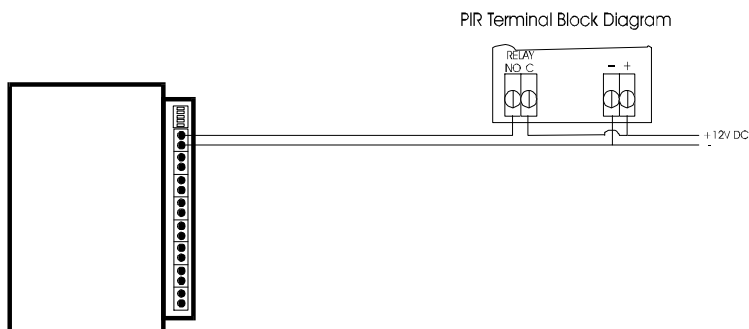
### Power Requirements

IO-Xpander +12vDC 400ma

# IO APPLICATIONS

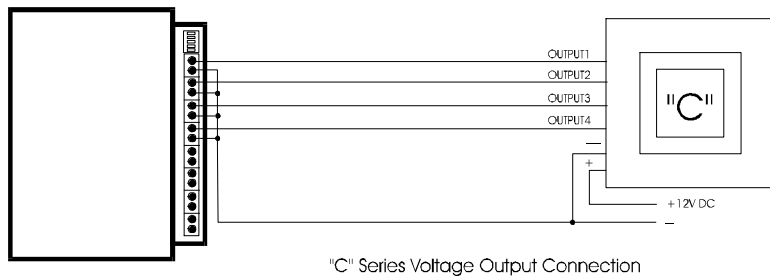
## Input Applications

### Interfacing to Motion Detectors



### Using the Linear Wireless Receiver

Interfacing to the Linear Wireless Receiver is straightforward and easy. The Wireless Receivers work with wireless motion detectors, push button and magnetic contact switches. The "C" Series Voltage Output type of wireless receiver is the easiest to interface to as shown below.

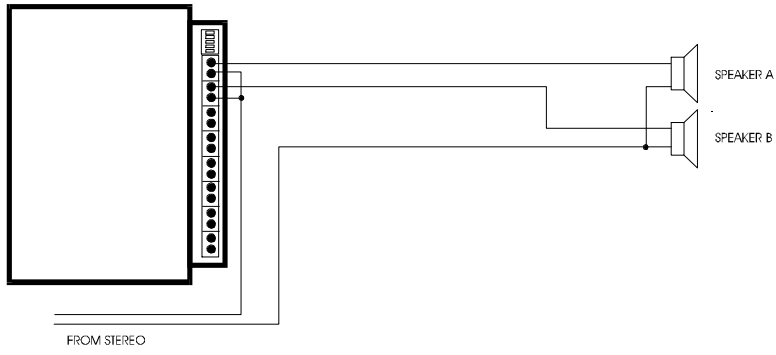


### Interfacing to a push button switch



## Relay Applications

### Speaker switching with IO-Xpander



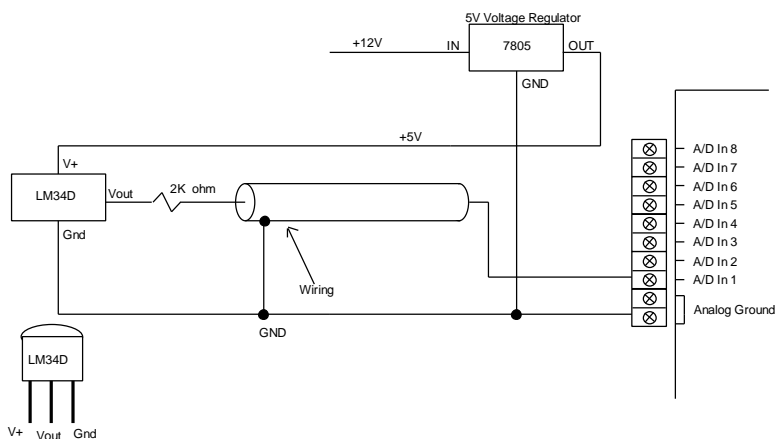
## Analog Applications

### Temperature Sensing with the LM34D Temperature Sensor

The LM34 series are precision integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Fahrenheit temperature. This makes it an ideal temperature sensor due to its simple interface. This application note will use the LM34D sensor which has a temperature range of +32°F to +212°F. Other sensors are available with different temperature ranges.

The LM34D sensor is configured as shown below. A power supply is needed to supply power to the LM34D sensor. Note that the ground for this small supply must be connected to the Analog Ground of the A/D converter. It is recommended not to supply more than 5 volts DC to the LM34D to ensure that the maximum A/D input voltage specification is not violated.

The LM34D outputs 10mV for every degree F. If the sensor reads 32°F, it will output 320mV, if it is reading 72°F, it will output 720mV. This output voltage can be used by the A/D converter to convert it to a value that can then be used in a schedule.



The LM34 has a limited ability to drive heavy capacitive loads. If heavier loads are anticipated, such as a long wire between the sensor and the A/D inputs, it is easy to isolate or decouple the sensor with a resistor as shown above.

---

**As with any circuit connected to wires in a hostile environment, its performance can be affected adversely by intense electromagnetic sources such as relays, radio transmitters, motors with arcing brushes, SCR's transients, etc., as its wiring can act as a receiving antenna. To ensure reliable operation, keep this wiring away from sources of noise and AC wiring.**

---

After wiring the sensor to the A/D inputs, it is time to calibrate. This is done under Define | IR & IO Device utility. Set the gain to '2' and scale factor to '0'. Read the A/D values by pressing the <Read> button. You will see the raw and scaled values that the A/D converter is reading. In this example, the scaled value will represent the actual temperature of the sensor. Now, due to voltage drop across the wiring, sensor differences, etc., the offset may need to be adjusted to make the scaled value match the actual temperature. Place a thermometer next to where the LM34 sensor is located, waiting a

few minutes for the temperatures to stabilize. Compare the thermometer reading to the scaled value and adjust the offset until they match. If the LM34 sensor is moved, or the wiring changes, it may be necessary to re-calibrate.

This temperature value can now be used in a schedule. Below is an example schedule that illustrates how this can be

```
EVENT: Turn ON Heat
If
  (A/D:Inside Temp) < 70
Then
  (Relay: Furnace Heat) ON
  Delay 0:03:00
End
```

```
EVENT: Turn OFF Heat
If
  (A/D:Inside Temp) > 72
Then
  (Relay: Furnace Heat) OFF
  Delay 0:03:00
End
```

used.

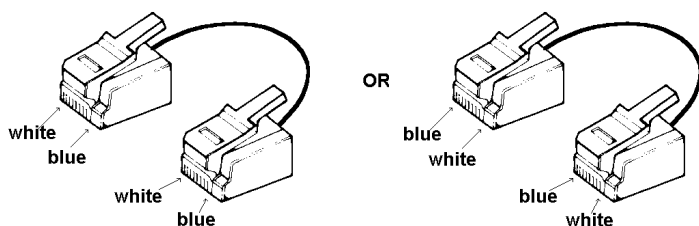
In this example, when the measured temperature drops below 70°, the 'Furnace Heat' relay is turned on. When the temperature rises above 72°, the 'Furnace Heat' relay is turned off. Note the 3 minute delay after each relay operation. That is in case the temperature is right on the edge of the setpoint, where in one pass through the schedule it may read 69°, then 70°, then 69°, and so on.

## Miscellaneous Applications

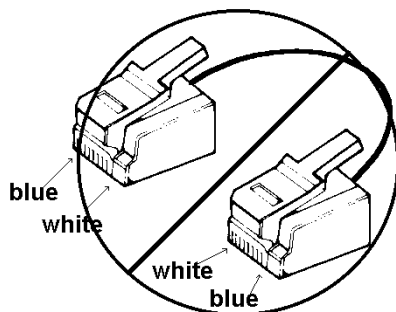
### Creating your own SD-Net cables

If the supplied SD-Net cables do not fit your requirements, you can either purchase a custom length cable or create your own. To create your own cable you will need 6-conductor telephone cable, 6-conductor RJ-11 style plugs and a tool to crimp the plugs to the cable. (Remember to stay under the max cable length)

Follow the crimp-tool instructions for stripping the wire and crimping the plugs. Make sure that you use the same polarity in the plugs as in the supplied cables and as shown below:



But not:



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