Configuring a motion sensor

Effects: ASIC/1-8X55
Date: November 6, 1998

Note No. TE016

The ASIC/1-8X55 has an option which allows an occupancy sensor to determine whether or not the state is Occupied. The occupancy sensor should be wired to input 8 as described in the data sheet enclosed with the sensor.

Below is the step-by-step method to setting up the ASI MOT sensor.

Using SET8055, press F5 and page down to Page 6. The screen will look like this:

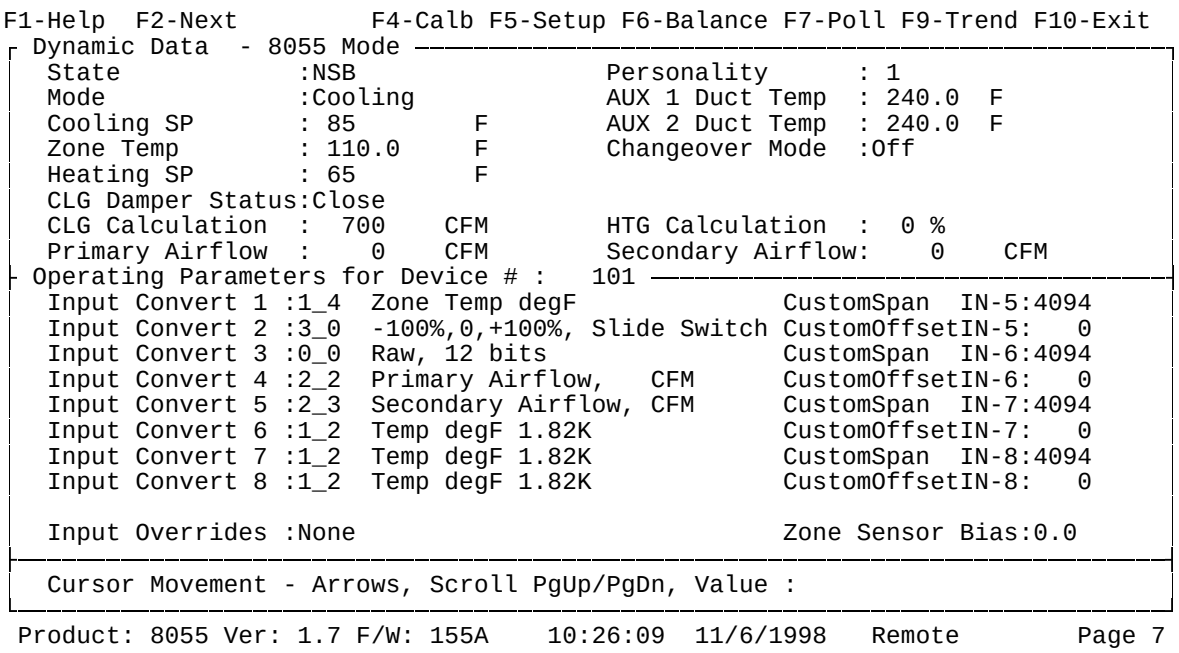
```
F1-Help  F2-Next         F4-Calb F5-Setup F6-Balance F7-Poll F9-Trend F10-Exit
┌ Dynamic Data  - 8055 Mode ──────────────────────────────────────────────────┐
  State            :NSB                Personality      : 1
  Mode             :Cooling            AUX 1 Duct Temp  : 240.0  F
  Cooling SP       : 85        F       AUX 2 Duct Temp  : 240.0  F
  Zone Temp        : 110.0     F       Changeover Mode  :Off
  Heating SP       : 65        F
  CLG Damper Status:Close
  CLG Calculation  :  700    CFM       HTG Calculation  :  0 %
  Primary Airflow  :    0    CFM       OccStatus        :Yes
├ Operating Parameters for Device # :   101 ──────────────────────────────────┤
  TrendMonth     :   8     DemandRange    :   6     AfterhrDateStamp:0/0
  TrendDate      :  25     DemandGroup    :   0     AfterhrHourStamp: 0:00
  TrendHour      :   1     DemandShedLevel:   6     AfterhrTotalTime: 3:24
  TrendDay       :   5     DmndRotateLevel:   6     Afterhour Enable:Yes
  TrendPointer   :  41     Shed Fan Enable :No      AfterhrTimeAllow: 0:02
  TrendInterval  :   1                              User Adjust Enab:No
  TrendTableOne  :  10     MWU Option 2 En :No
  TrendEntryOne  :  25     NSB Option 2 En :No      OccSensorEnable :No
  TrendTableTwo  :  10     UNO Option 2 En :No      OccSenseClosed  :No
  TrendEntryTwo  :  17     State Sched Dis :No      OccAfterHrsEnabl:No
├─────────────────────────────────────────────────────────────────────────────┤
  Cursor Movement - Arrows, Scroll PgUp/PgDn, Value :
└─────────────────────────────────────────────────────────────────────────────┘
 Product: 8055 Ver: 1.7 F/W: 155A    10:24:06  11/6/1998   Remote        Page 6
```

To enable the occupancy sensor, either OccSensorEnable or OccAfterHrsEnable should be set to Yes. Do not set both fields to Yes. Occupancy Status will be determined as follows:

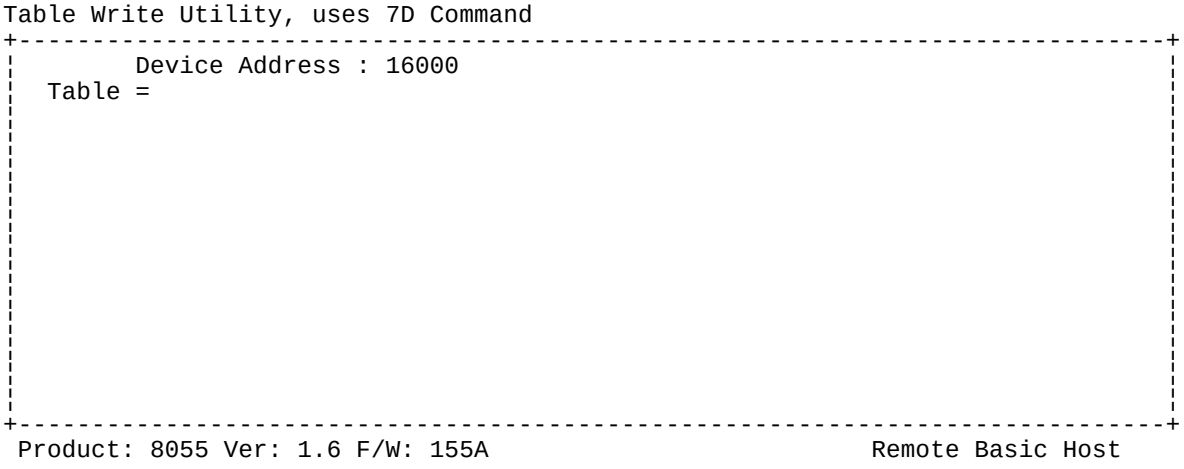
OccSensorEnable	OccAfterHrsEnable	Occ Sensor Status	Occupancy Status
Yes	No	Open	Yes
Yes	No	Closed	No
No	Yes	Open	Yes
No	Yes	Closed	No

OccAfterHrsEnable should be set to Yes if the occupancy sensor should only be examined during NSB and Unoccupied. OccSensorEnable should be set to Yes if the occupancy sensor should be examined at all times.

Page down to Page 7. The screen will look like this:



Arrow down to the Input Convert 8 field and press the space bar, then press Enter. Use the cursor keys to highlight the Raw, 12 bits field, then press Enter. The convert type should then read 0_0. Hold down the Alt key while pressing the F2 key. You will then see a screen like this:



Type 3 next to Table =, then press Enter. Type 15 next to Start =, then press Enter. Type 1 next to Number =, then press Enter. Next to Byte 15: ?=, type A4, then press Enter. Press Enter to download, then Esc to exit. Reset the controller, then press F7 to view the Polling screens and confirm that the motion sensor is functioning correctly.

The Magic Behind the setup

Occupancy Sensor Threshold

The Occupancy Sensor Threshold gives the 8-bit numeric value at which the decision for Occupancy Sensor Status is yes or no. This value may be multiplied by 16 to give the 12-bit raw value. The default value is 25.

Table Write Utility

The Table Write Utility, accessed by pressing the Alt and F2 keys simultaneously, is used to directly write to tables in the ASIC/1-8X55.

The ASI MOT sensor should give a value of 4.8 VDC when occupied, which the ASIC/1-8x55 reads as a raw value of 3923. When unoccupied, a value of 1.64 VDC should be read between input 8 and common, which is read as a raw value of 1332. This average of these 2 12-bit values is 2627.5. Dividing by 16 to give the 8-bit value yields an integer value of 164.

Values are stored in the ASIC/1-8X55 as hexadecimal values. The Occupancy Sensor Threshold is stored in Table 3, Entry 15. A value of 164 is represented in hexadecimal form as A4. The Table Write Utility asks for Table, Starting Entry, and Number of Entries as Table, Start, and Number. To write to Table 3, Entry 15, you would enter Table = 3, Start = 15, and Number = 1.