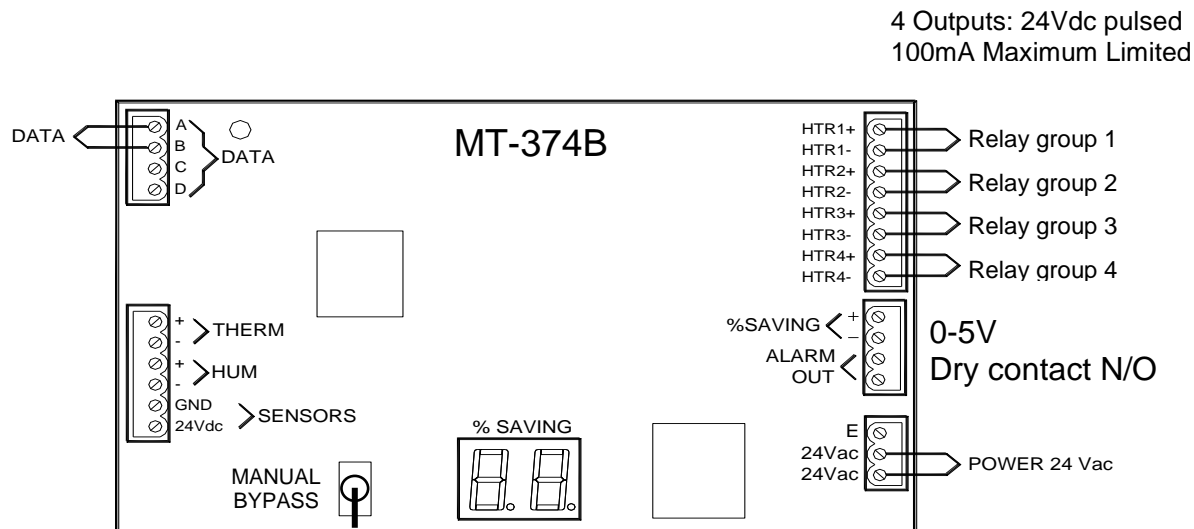


Anti-sweat Energy Saver Installation guide

Introduction.

The Anti-sweat Energy Saver model MT-374B is an *MT-Alliance compatible* controller that modulates the power delivered to a maximum of 4 anti-sweat heaters channels according to the dew point in the supermarket where the controller is installed. Temperature and humidity measurement are used to calculate how much heating it is required to avoid condensing on glass doors. The processor board work without local user interface when networked with an MT-Alliance computer but it can work as standalone with the Local User Interface MT-364B ordered separately.

Wiring:



1 Physical Installation:

The Anti-sweat Energy Saving board comes on a snaptrack. Remove the board from the snaptrack and secure the snaptrack on a solid surface inside of an electric panel using screws. Put back the Anti-sweat Energy Saving board by clipping it on the snaptrack.

Make all wiring connection accordingly to the diagram connection above or on a drawing provided from Parker Hannifin Engineering advisor. Use a Micro Thermo Temperature and Humidity combo sensor p/n 023-0026. A connection to earth ground must be made for proper 24VAC power filtering, and provide EMC and ESD protection for the FTT-10A transceiver.

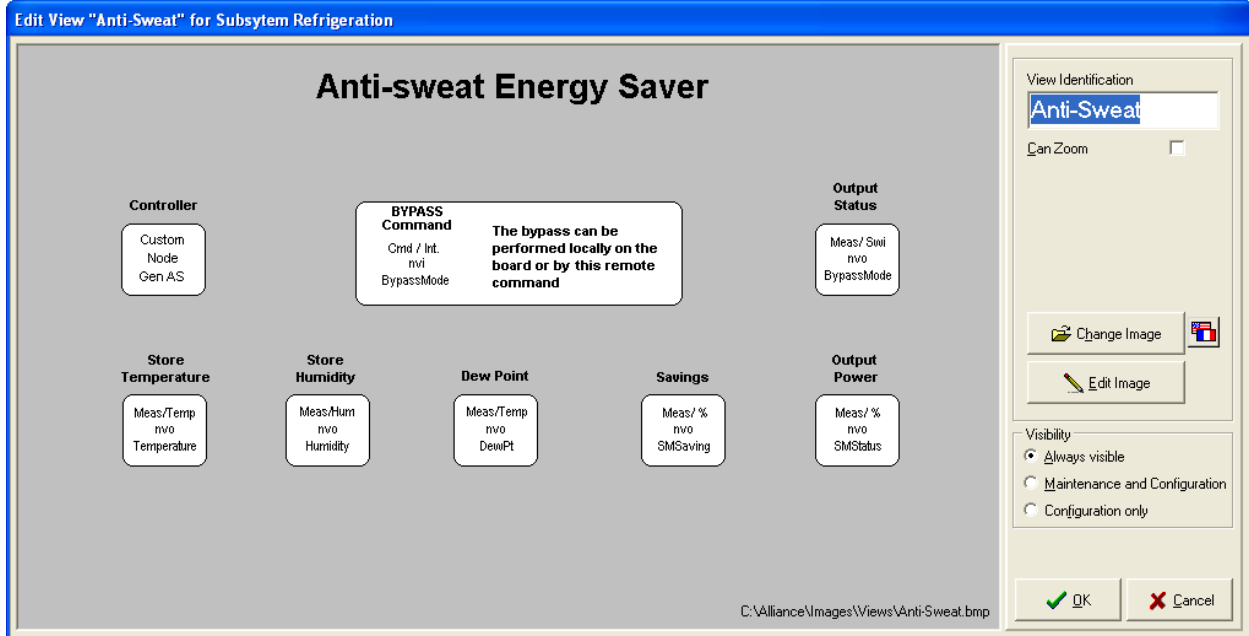
2 MT-Alliance Installation:

The MT-374B can be installed on MTA 7.2.3 or later but it is possible to install it on version 6.0 or later on certain conditions. Before installation in version 6.0 you must install the patch for MT-374B. If you are replacing a 3744 with a 374B on MTA before 7.2.3 you will need to install the patch before executing the replacement. From the moment the node is dropped and installed on a view, Dew Point Alarm is monitored by MTA, the optional Local User Interface will display measurements but controls will be locked. See also the Anti-sweat standalone User Manual PUID 75-PHW-1012 for standalone installation and configuration with the Local User Interface.

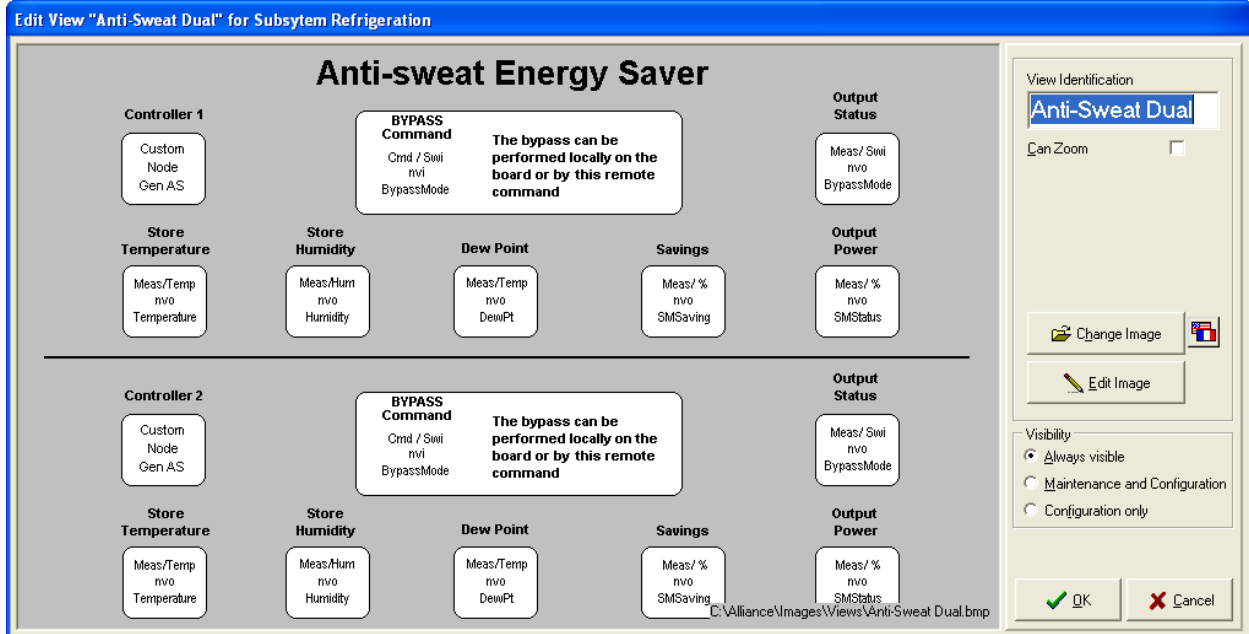
3 Alliance Configurations Step by step procedure

In MT Alliance 7.3 you should create a view with the Configure - Views menu
Select the Refrigeration subsystem then click Add, then Change Image, then select Anti-Sweat.bmp
Then change the View identification for Anti-Sweat

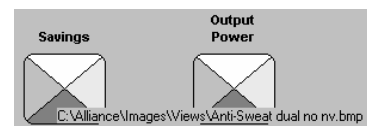
Example with Anti-Sweat.bmp



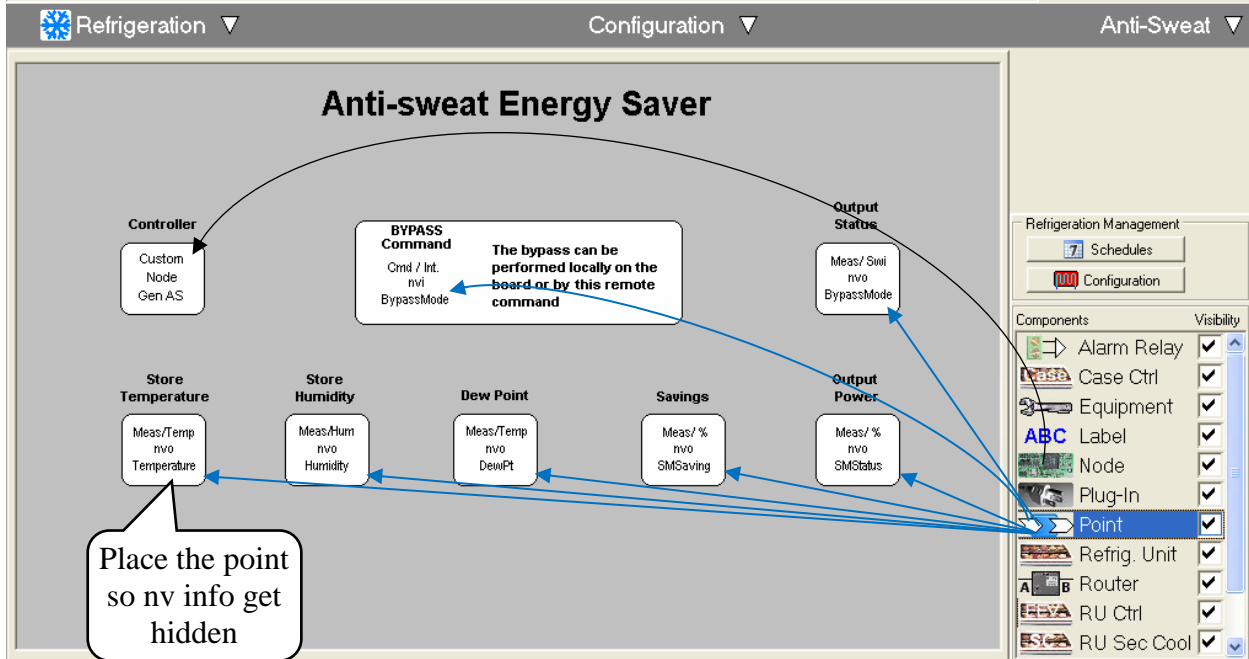
If you have 2 Anti-Sweat controller you can use Anti-Sweat Dual.bmp



If for any reason you may want blank point location you may change images for "Anti-Sweat no nv.bmp" or "Anti-Sweat Dual no nv.bmp"



Dropping the Node and Custom Points



Drop a Custom Node on the Anti-Sweat view:
 Node type: - Custom
 Manufacturer: - Micro Thermo
 Model: - Gen Anti-sweat V7.0

First, you can drop an Electric Equipment to avoid to show a blank space in Overview mode



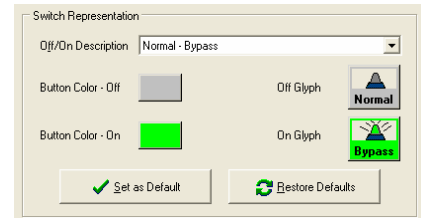
Click Details tab of the node and enter Identification: AS3
 Click Commands/Status and install it to get the node ready for configuration.

Drop a custom point for Bypass Command:

Point Type: - Command
 Physical Type: - Switch
 Identification: *Leave default*

Click On the hardware tab of the point:

Custom node identification: AS3
 Network Variable Input Name: nviBypassMode
 Off/On Description: Normal - Bypass
 Button color – Off: Grey Off Glyph:
 Button color – On: Green On Glyph:

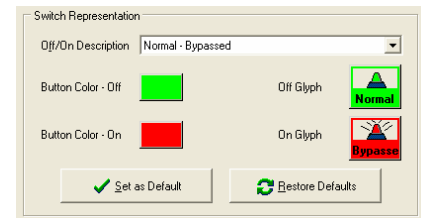


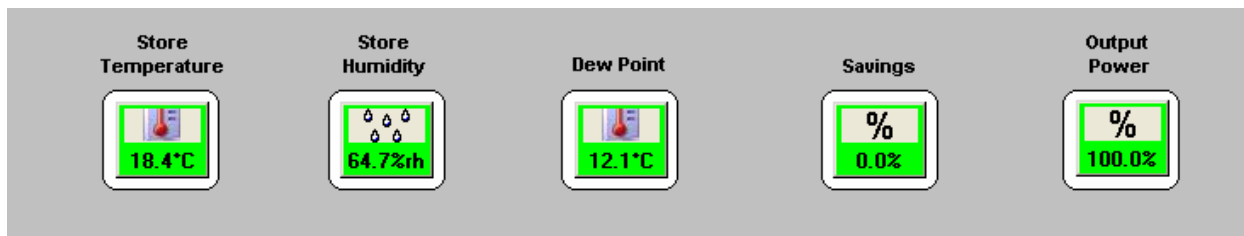
Drop a custom point for Output Status:

Point Type: - Measure
 Physical Type: - Switch
 Identification: *Leave default*

Click On the hardware tab of the point:

Custom node identification: AS3
 Network Variable Input Name: nviBypassMode
 Off/On Description: Normal - Bypass
 Button color – Off: Grey Off Glyph:
 Button color – On: Green On Glyph:





Drop a custom point for Store Temperature:

- Point Type: - Measure
- Physical Type: - Temperature

Click On the hardware tab of the point:

- Custom node identification: AS3
- Network Variable Output Name: nvoTemperature

Drop a custom point for Store Humidity:

- Point Type: - Measure
- Physical Type: - Humidity

On the hardware tab:

- Custom node identification: AS3
- Network Variable Output Name: nvoHumidity

Drop a custom point for calculated Dew Point:

- Point Type: - Measure
- Physical Type: - Temperature

Click On the hardware tab of the point:

- Custom node identification: AS3
- Network Variable Output Name: nvoDewPt

Drop a custom point for calculated Savings:

- Point Type: - Measure
- Physical Type: - Percent

Click On the hardware tab of the point:

- Custom node identification: AS3
- Network Variable Output Name: nvoSMSaving

Drop a custom point for Output Power:

- Point Type: - Measure
- Physical Type: - Percent

Click On the hardware tab of the point:

- Custom node identification: AS3
- Network Variable Output Name: nvoSMStatus

To use remote sensors you need to make these network connections from the Network menu:

```
nvoRH A\C-X -----> Anti-sweat (AS3) . nviHumidity
nvoTemp A\C-X -----> Anti-sweat (AS3) . nviTemperature
```

If an nvi sensor is not bound the respective local sensor will be used automatically.

If for any reason you may want blank point location you may change images for “Anti-Sweat no nv.bmp” or “Anti-Sweat Dual no nv.bmp”

4 Alarm Management

From the moment the Anti-sweat Energy Saving node is dropped and installed on a view, Dew Point Alarm is monitored by MT Alliance and eventually appears on the Alarm panel.

To change Dew Point alarm High Limit and Set Time you need to open the Anti_Sweat_Ctrl LonMark Objects in the Node Information window.

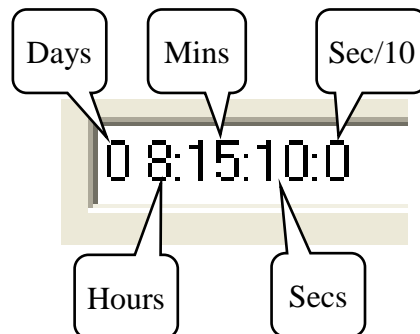
Dew Point alarm High Limit is defined with UCPTDewPtAlarmSt1 with 0 2:0:0:0 as default value for 0 days, 2 hours, 0 minutes and 0 second.

Dew Point Set Time is defined with UCPTDewPtHighLim1 with 25°C as default value.

The screenshot shows the 'LonMark for AS3' window with the 'Configuration Properties (25)' section expanded. The 'UCPTDewPtAlarmSt1' property is highlighted with a value of '0 2:0:0:0'. Other properties include UCPTAlarmPrLev1 (0), UCPTDewPtHighLim1 (25.00), UCPTDewPtMaxVal (37.22), UCPTDewPtMinVal (-17.77), UCPTDpMaxStPt (13.00), and UCPTDpMinStPt (-1.00). The 'Inputs (6)' and 'Outputs (8)' sections are also visible, showing various variables and their values. On the right side, there are controls for 'Refresh Interval' (3 seconds), 'Display' (NVs and CPs), 'LonMark Objects' (Anti_Sweat_Ctrl), and buttons for 'Modify CP' and 'Program CPs'. An 'OK' button is at the bottom right.

Variable	Value
UCPTAlarmPrLev1	0
UCPTDewPtAlarmSt1	0 2:0:0:0
UCPTDewPtHighLim1	25.00
UCPTDewPtMaxVal	37.22
UCPTDewPtMinVal	-17.77
UCPTDpMaxStPt	13.00
UCPTDpMinStPt	-1.00

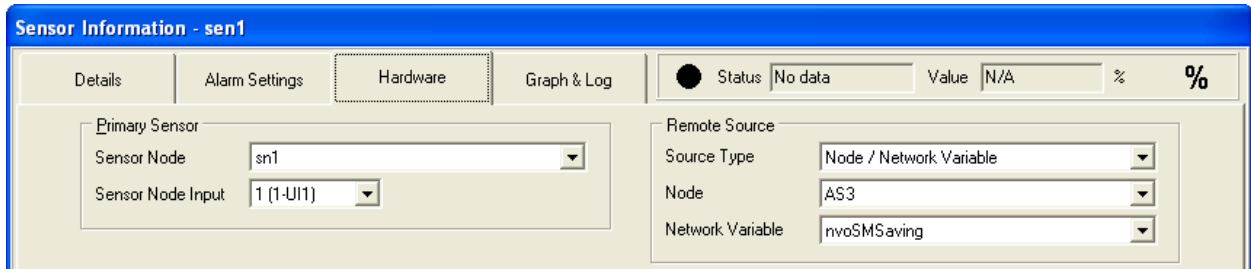
To change any of the CP, double click on it and change the appropriate value. Take special care to change Set Time as the structure is not explicitly shown:



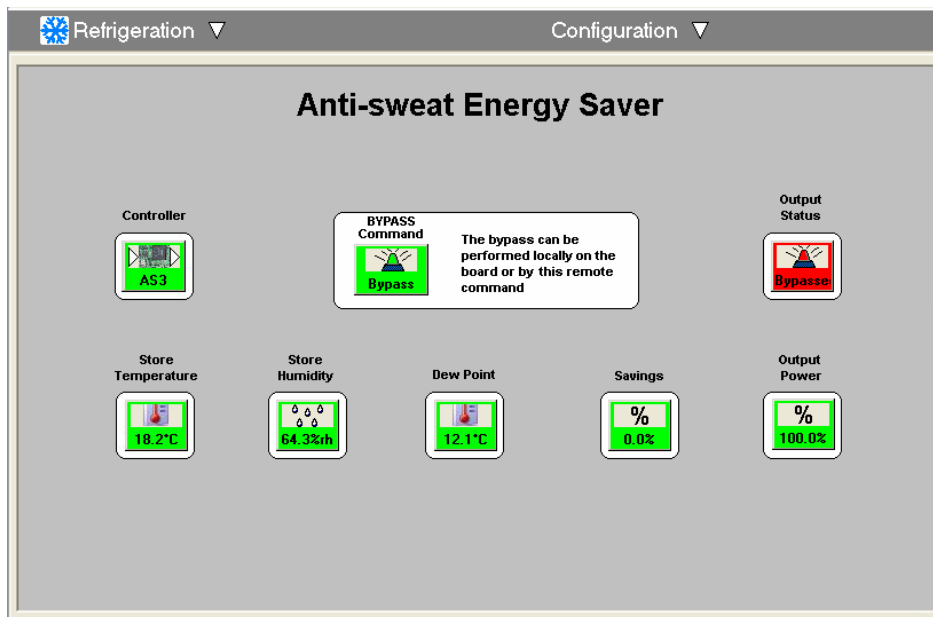
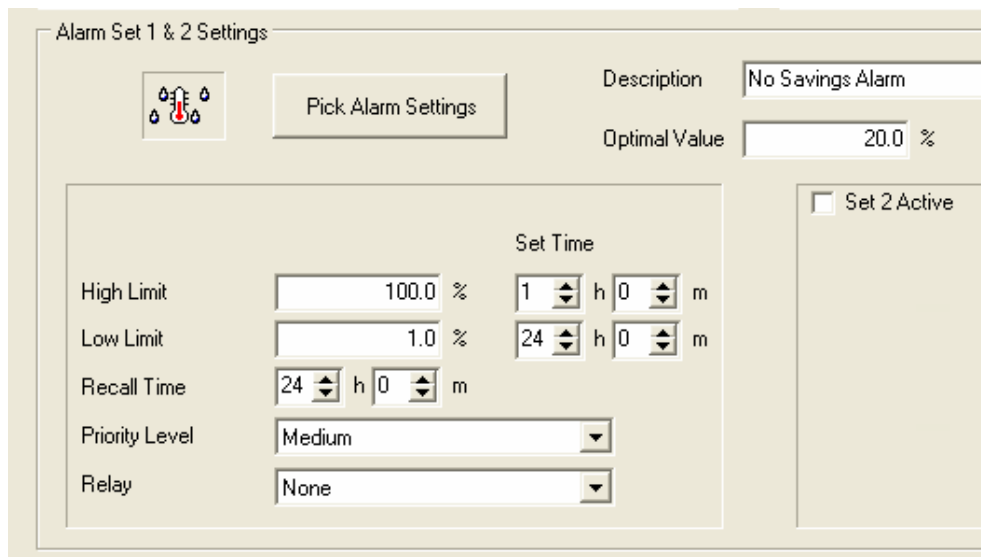
Temperature and dew point values are available in Celsius only

Click OK then Yes to Accept Changes and to program CPs when prompted

It is also possible to monitor nvoSMSaving through an alarm config of a sensor of a Sensor Node.

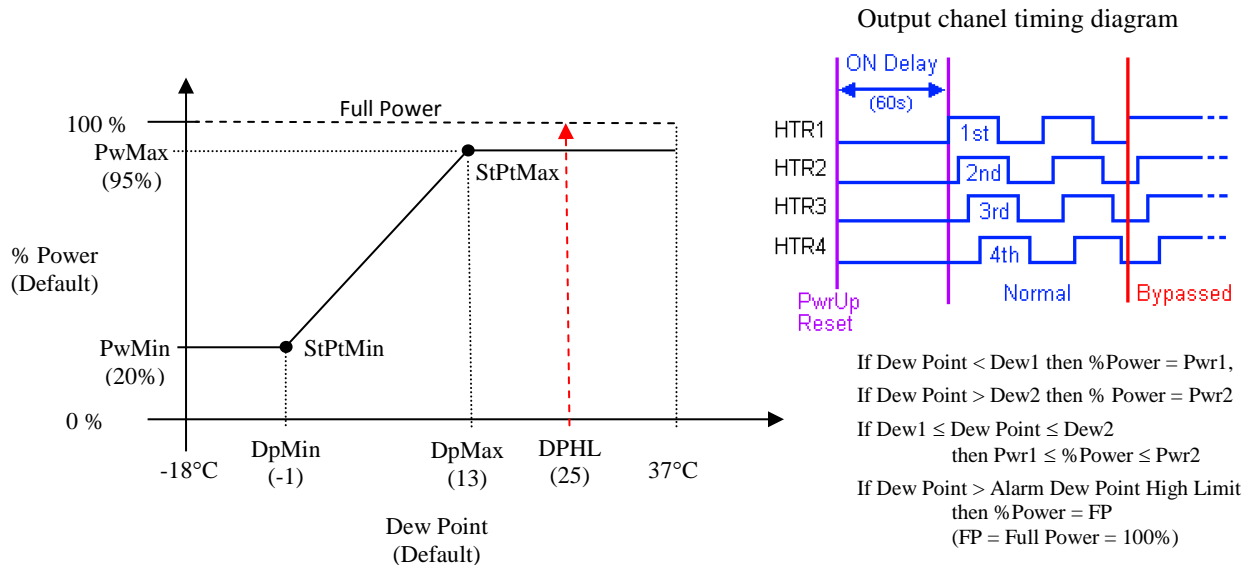


By example if you want an alarm in case of there is no saving for more than 24 continuous hours Set Low Limit to 1% and set time to 24h.



5 Transfer Function Parameter Setting.

The transfer function of the control is based on two points (StPtMin, StPtMax) each one identified by two coordinates on a DEW/PWR graphic: StPtMin (DpMin, PwMin) and StPtMax (DpMax, PwMax) used to modulate the output power according to the dew point.



6 Operation

Unless bypass is ON, at power up the UCPTSmOnDelay will prevent heating for 60 sec. When running it will pulse each heater channel sequentially with a duty cycle according to the % power.

If dew point is higher than Dew Point High Limit (UCPTDewPtHighLim1) for longer than Dew Point Set Time (UCPTDewPtAlarmSt1) the output power will be forced to Full Power, Dew Point Alarm will appear on the Alarm Panel and the board normally open dry contact will remain close as long as the alarm status is ON. If thereafter the dew point becomes lower than the limit, the Alarm Status will remain but the output power for heating will not be forced to full any more. This alarm function can be used to detect persistent moisture problem.

It is also possible to perform a manual bypass to force the Anti-sweat Energy Saver to run at Full Power until the bypass is released. Manual Bypass can be performed locally on the board or by the command point on the Anti-Sweat view either in Overview mode or Configuration mode. If the temperature or the humidity value comes from the network via a SNVT and the communication fails, the reading will switch to a local sensor. If no remote sensor and no local sensor temperature or humidity is found the temperature sensor display and the dew point display will show "327.7C", the humidity sensor will show "163.8%", the system will put the Outputs to a full power 100% duty cycle and the Output Power will show "100%" and the %Saving will be 0%. You will get the alarm status after the Dew Point Set Time expires. Calibration can be done to the sensors using UCPTTempOffset and UCPTHumOffset.

Annex A

LonMark Objects

LonMark for AS3

Inputs (2)	
Variable	Value
nviRequest	1.RQ_PROGRAM
nviTimeSet	2016/9/27 17:22:28

Outputs (4)	
Variable	Value
nvoAlarm	0 0 0 0 0 0 0 AL_NO_CONDITION PR_LEVEL_0 0 <0 0 0 0> 0/0/0/0:0:0
nvoFileDir	43b3
nvoReset	100.0 1
nvoStatus	1 0,0,0,1,0

Configuration Properties (5)	
Variable	Value
UCPTActuatorKey	0
UCPTMaxSendT	60.0
UCPTMinSendT	3.0
UCPTModeStandAlone	0
UCPTRcvHrtBt	130.0

Refresh Interval: 3 seconds

Display: NVs and CPs

LonMark Objects: Node Object

Modify NV

Program CPs

OK

LonMark for AS3

Inputs (6)	
Variable	Value
nviBypassMode	0 0 0
nviHumidity	0.000
nviLdShedReq	0 0 0
nviOvrBehave	OV_RETAIN
nviSMOverride	0.000
nviTemperature	0.00

Outputs (8)	
Variable	Value
nvoBypassMode	0 0 0
nvoDewPt	8.87
nvoHumidity	38.035
nvoLdShedResp	0 0 0
nvoLoadAbs	74.4
nvoSMSaving	25.575
nvoSMStatus	74.425
nvoTemperature	23.66

Refresh Interval: 3 seconds

Display: NVs and CPs

LonMark Objects: Anti_Sweat_Ctrl

Modify NV

Program CPs

LonMark for AS3

Configuration Properties (25)

Variable	Value
UCPTAlarmPrLev1	0
UCPTDewPtAlarmSt1	0 2:0:0:0
UCPTDewPtHighLim1	25.00
UCPTDewPtMaxVal	37.22
UCPTDewPtMinVal	-17.77
UCPTDpMaxStPt	13.00
UCPTDpMinStPt	-1.00
UCPTHtrAbsPower	100.0
UCPTHumDelta	1.000
UCPTHumDfltValue	40.000
UCPTHumMaxVal	99.000
UCPTHumMinVal	0.000
UCPTHumOffset	0.000
UCPTInvertSavingOut	0
UCPTLdShedTm	0
UCPTLdShedValue	50.000
UCPTPwMaxStPt	95.000
UCPTPwMinStPt	20.000
UCPTSmCycleTm	0 0:0:1:0
UCPTSmOnDelay	60.0
UCPTTempDelta	1.00
UCPTTempDfltValue	22.00
UCPTTempMaxVal	37.22
UCPTTempMinVal	-17.77
UCPTTempOffset	0.00

Refresh Interval:
3 seconds

Display:
CPs only

LonMark Objects:
Anti_Sweat_Ctrl

Modify CP

Program CPs

OK