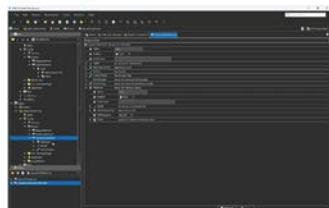
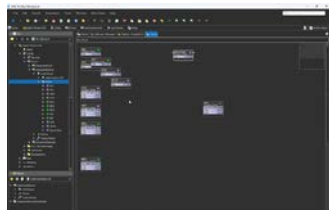
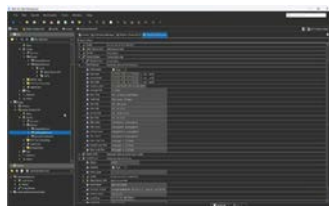


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GENERAL INFORMATION

About KMC Fusion

KMC Fusion® controllers are fully programmable, native Niagara controllers with integrated alarming, trending, and scheduling. This applications guide provides network connection information, expanded installation information, troubleshooting, and other information. For additional installation instructions, see the installation guides for the respective products.

TERMINAL COLOR CODE	
Black	24 VAC/VDC Power
Gray	CAN Communications
Green	Inputs and Outputs

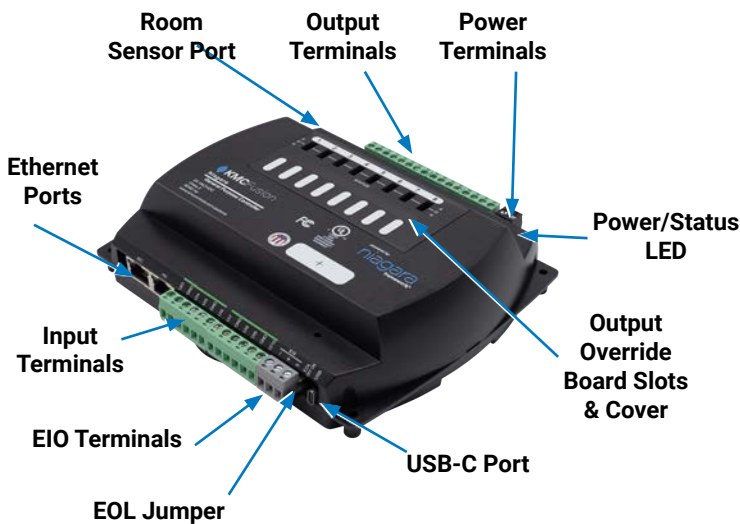


Illustration: Controller Overview (KMN-5901E shown)

Specifications, Accessories, and Installation

For information on specifications and accessories, see the relevant [KMC Fusion Data Sheet](#). See also the [KMC Fusion Selection Guide](#).

For information on hardware installation and operation, refer to the [KMC Fusion Installation and Operation Guide](#).

For information on using the Fusion devices with other related KMC hardware, refer to the [Fusion Controller Application Guide](#).

See also the [BAC-5051AE BACnet Router](#).

For information on Niagara Framework programming and setup, see Tridium's Niagara Workbench documentation.

Support

Additional resources for installation, configuration, application, operation, programming, upgrading and much more are available on the KMC Controls web site (www.kmccontrols.com). Log-in to see all available files.



Important Notices

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Specifications and design are subject to change without notice.

Notes and Cautions

NOTE: In this document, a **NOTE** provides additional information that is important.

⚠ CAUTION

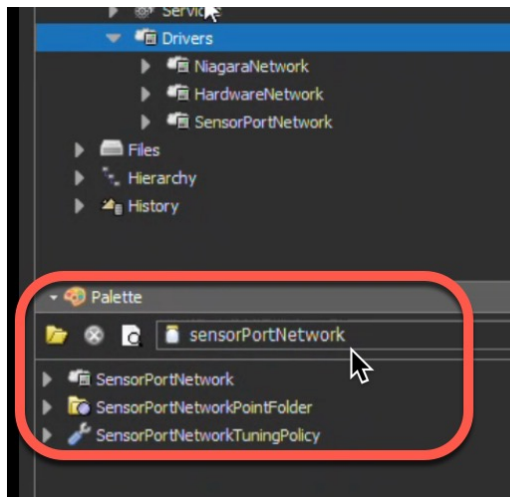
In this document, a CAUTION indicates potential personal injury or equipment or property damage if instructions are not followed.

Handling Precautions

For **digital and electronic** sensors, thermostats, and controllers, take reasonable precautions to prevent electrostatic discharges to the devices when installing, servicing, or operating them. Discharge accumulated static electricity by touching one's hand to a securely grounded object before working with each device.



ADDING THE DRIVER

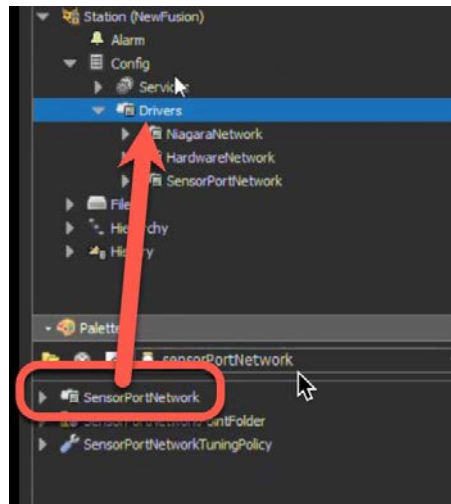


To access a KMC Fusion Controller and connect with Niagara station, refer to Tridium's Niagara Workbench documentation.

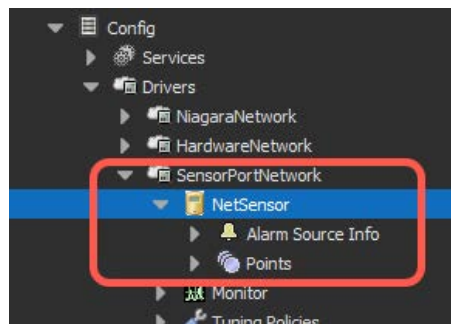
To add the Sensor Port Network to the Station, do the following:

1. From the KMC Workbench, open a Palette sidebar for the **SensorPortNetwork**.
2. In the Nav tree, click to expand: **Station > Config > Drivers**.
3. Locate **SensorPortNetwork** in the Palette, click and hold, and then drag and drop it into the Drivers container.

NOTE: You must install the SensorPort Network jar files on the KMC Fusion device's platform before adding the driver to the station

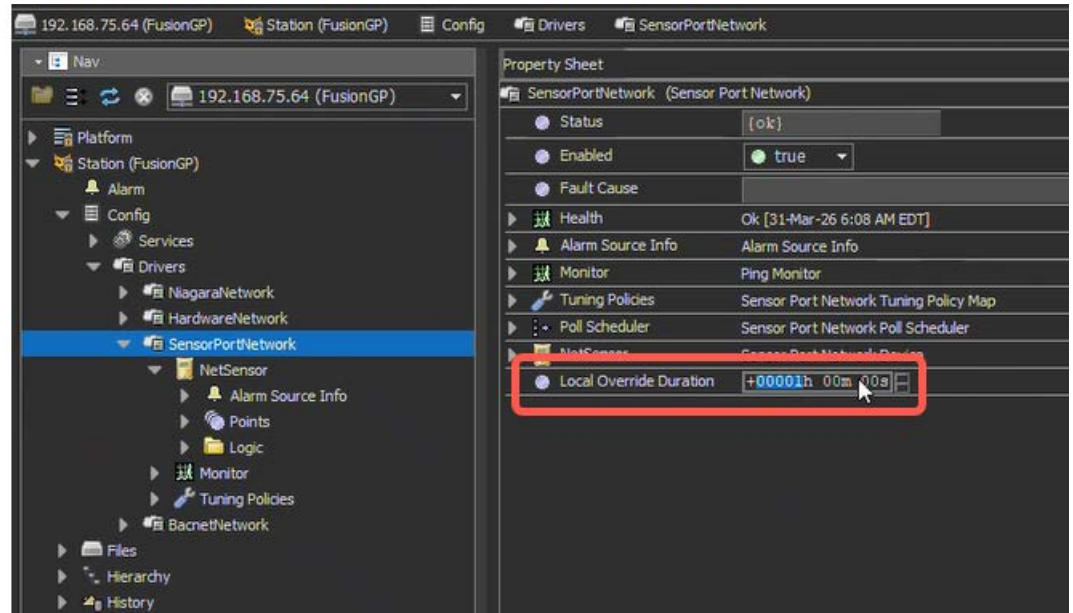


4. In the Nav tree, expand the **SensorPortNetwork** and verify that you see **NetSensor > Points** under it.



Local Override Duration

NetSensor devices provide for local occupant adjustments on the device. As you makes change locally via the NetSensor, adjustments and updates within Niagara are also made to the system. One of these options you can configure is the override setting. The Local Override Duration applies for all objects that invoke an override action, when changed locally at the NetSensor.

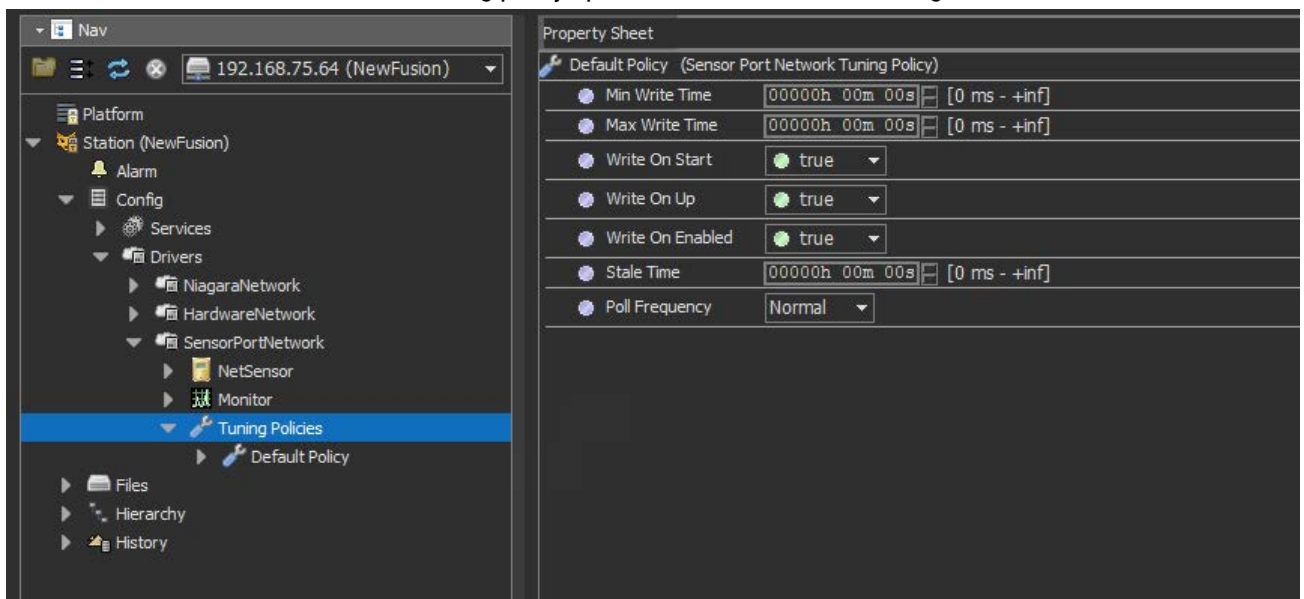


NOTE: For more details on the operation options, see the section [Configuring Points](#).

Tuning Policy

The Sensor Port Network supports Niagara tuning policies, which allows you to select a poll frequency for each tuning policy. You can add a new tuning policy by duplicating the default policy or adding a policy from the module's palette.

You can add as many custom Tuning Policies as necessary. For details on tuning policy operations, refer to Tridium's Niagara Workbench documentation.



Poll Scheduler

You can configure your poll rates and speeds within the Poll Scheduler. For more information, refer to Tridium's Niagara Workbench documentation.

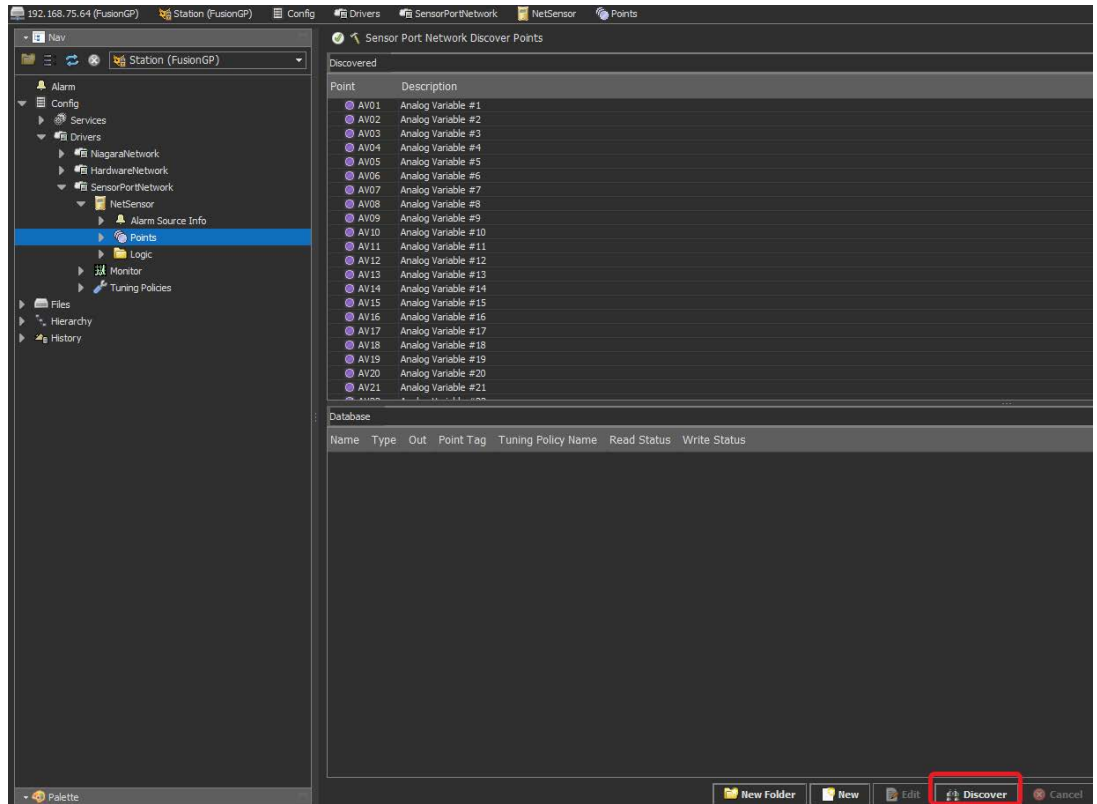
The screenshot displays the Niagara Workbench interface. On the left, the 'Nav' pane shows a tree view of the system hierarchy. The 'SensorPortNetwork' device is selected under the 'Drivers' folder. The main area on the right shows the 'Property Sheet' for the 'SensorPortNetwork (Sensor Port Network)' device. The 'Poll Scheduler' section is expanded, showing various configuration parameters and statistics.

Property Sheet: SensorPortNetwork (Sensor Port Network)	
Status	[ok]
Enabled	true
Fault Cause	
Health	Ok [11-Jan-26 7:34 PM EST]
Alarm Source Info	Alarm Source Info
Monitor	Ping Monitor
Tuning Policies	Sensor Port Network Tuning Policy Map
Poll Scheduler	Sensor Port Network Poll Scheduler
Poll Enabled	true
Fast Rate	00000h 00m 03.000s [1 ms - +inf]
Normal Rate	00000h 00m 08.000s [1 ms - +inf]
Slow Rate	00000h 00m 30.000s [1 ms - +inf]
Statistics Start	09-Jan-2026 06:44 PM EST
Average Poll	0.01ms
Busy Time	0% (1260ms/176070sec)
Total Polls	203k over 1260ms
Dbs Polls	0% (4/203k)
Fast Polls	0% (0/203k)
Normal Polls	0% (1/203k)
Slow Polls	0% (0/203k)
Dbs Count	current=0 average=0
Fast Count	current=0 average=0
Normal Count	current=0 average=0
Slow Count	current=0 average=0
Fast Cycle Time	average = 3000ms
Normal Cycle Time	average = 8000ms
Slow Cycle Time	average = 30000ms
NetSensor	Sensor Port Network Device

DISCOVERING AND ADDING POINTS

To discover and add points in the KMC Fusion controller

1. In the Nav tree, expand the **SensorPortNetwork > NetSensor**, double-click **Points**, and then click **Discover**.



The Sensor Network includes the following points:

- 50 user-defined AVs (Analog/Numeric Variable), in addition to the following preprogrammed objects:

Object Identifier	Description
AV76	DS01 TEMPERATURE SENSOR
AV77	DS01 RH SENSOR
AV78	DS01 CO2 SENSOR
AV79	Not used
AV80	Fusion HPO Status Bitwise
AV81	CAN1 HPO Status Bitwise
AV82	CAN2 HPO Status Bitwise
AV83	CAN3 HPO Status Bitwise
AV84	CAN4 HPO Status Bitwise
AV85	Fusion App Version

- 25 user-defined BVs (Binary/Boolean Variable), in addition to the following preprogrammed objects

Object Identifier	Description
BV41	Icon Fan Low Speed
BV42	Icon Fan Medium Speed
BV43	Icon Fan High Speed
BV44	Icon Fan Auto
BV45	Icon Occupied
BV46	Icon Standby
BV47	Icon Cooling
BV48	Icon Heating
BV49	Icon Auto Mode
BV50	Icon Override
BV51	Fan Icon
BV52	Motion Sensor
BV53	STE-6000 Override Button
BV54	Not Used
BV55	HPO Summary Alarm

- 10 user-defined MSV (Multistate/Enumerated (Enum) Variable), in addition to the following preprogrammed object

Object Identifier	Description
MSV16	MODE SETPOINT DISPLAY

2. Click on the point you want to add from the Discovered list, and then click **Add** from the buttons across the bottom of your screen to open the Add dialog.
3. Refer to the following sections for procedures on configuring the various types of Sensor Port variables/points/objects.

CONFIGURING POINTS

These procedures detail the KMC-specific items you need to be aware of when configuring points and are not intended to be a comprehensive set of steps. For detailed instructions on adding a points, refer to Tridium's Niagara Workbench documentation.

Skip to the appropriate sections to add your desired type of points.

Niagara Actions

All writable objects accessible by the NetSensor have a property for Niagara action. Defining the Niagara action determines how the Niagara environment responds when a difference is detected between the read and write values for objects mapped to the NetSensor.

The Niagara action has the following options and operations:

Ignore

When you select Ignore, the Niagara Proxy point takes no action when the read value is different than the write value.

Override

When you select Override, the Niagara Proxy point invokes a Niagara override action (in8). The override uses the read value (the value read from the NetSensor) and creates the override on the Niagara proxy point for the duration, as defined in the Local Override Duration property on the SensorPort Network.

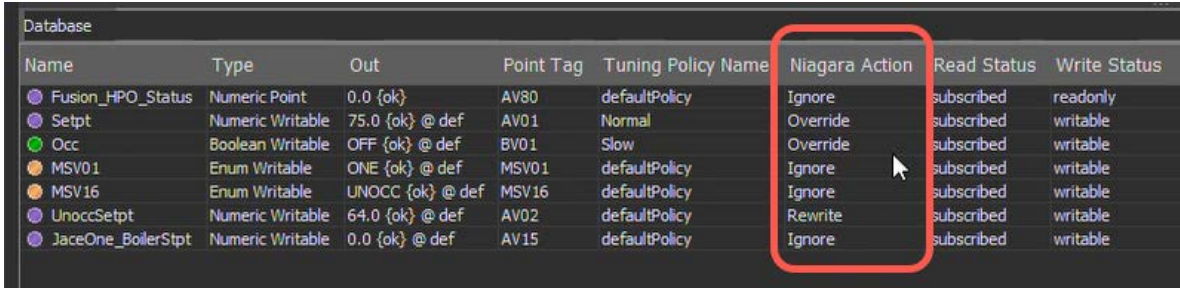
Set

When you select Set, the Niagara Proxy point invokes a Niagara set action (fallback). The set action uses the read value (value read from the NetSensor) and sets the Niagara proxy point.

Rewrite

When you select Rewrite, the Niagara Proxy point re-writes the current write value when the read value (value read from the NetSensor) is different from the write value in the Niagara proxy point.

The Niagara Action settings appear in the Discovered Points, Database window:



Name	Type	Out	Point Tag	Tuning Policy Name	Niagara Action	Read Status	Write Status
Fusion_HPO_Status	Numeric Point	0.0 {ok} @ def	AV80	defaultPolicy	Ignore	subscribed	readonly
Setpt	Numeric Writable	75.0 {ok} @ def	AV01	Normal	Override	subscribed	writable
Occ	Boolean Writable	OFF {ok} @ def	BV01	Slow	Override	subscribed	writable
MSV01	Enum Writable	ONE {ok} @ def	MSV01	defaultPolicy	Ignore	subscribed	writable
MSV16	Enum Writable	UNOCC {ok} @ def	MSV16	defaultPolicy	Ignore	subscribed	writable
UnoccSetpt	Numeric Writable	64.0 {ok} @ def	AV02	defaultPolicy	Rewrite	subscribed	writable
JaceOne_BoilerStpt	Numeric Writable	0.0 {ok} @ def	AV15	defaultPolicy	Ignore	subscribed	writable

Configure an Analog Variable Point

To configure an Analog Variable Point, do the following:

1. Select the AV point to add from the discovered list, as described in the section **Discovering and Adding Points**.

Name	Type	Enabled	Point Tag	Object Id	Facets	Tuning Policy Name	Niagara Action
AV01	Numeric Writable	true	AV01	analogValue:1	units=null,precision=1,min=-inf,max=+inf	defaultPolicy	Ignore

Name: AV01

Type: Numeric Writable

Enabled: true

Point Tag: AV01

Object Id: analogValue:1

Facets: units=null,precision=1,min=-inf,max=+inf

Tuning Policy Name: Default Policy

Niagara Action: Ignore

Read Status: unsubscribed

Write Status: writable

Device Facets:

Conversion: Default

OK Cancel

NOTE: Grayed-out fields are read-only and cannot be changed in this dialog.

2. Type a unique **Name** that describes the point you are configuring.
3. Select the point **Type** (read only or writable) for the object you are adding.
4. Configure the **Facets** as appropriate for the point type.
NOTE: Selected facets are for Niagara application use only. When presented on the NetSensor, these Numeric values are unit-less in nature.
5. Select the **Tuning Policy Name**.
6. Select the appropriate **Niagara Action**.
7. Leave Conversion set to **Default**.
8. Click **OK** to add the point to the station.
The point appears in the Database list.
9. Add all AV points as necessary.

Configure a Binary Variable Point

To configure a Binary Variable Point, do the following:

1. Select the BV point to add from the discovered list, as described in the section **Discovering and Adding Points**.

Name	Type	Enabled	Point Tag	Object Id	Facets	Tuning Policy Name	Niagara Action
BV01	Boolean Writable	true	BV01	binaryValue:1	falseText=OFF,trueText=ON	defaultPolicy	Ignore

Name: BV01
Type: Boolean Writable
Enabled: true
Point Tag: BV01
Object Id: binaryValue:1
Facets: falseText=OFF,trueText=ON
Tuning Policy Name: Default Policy
Niagara Action: Ignore
Read Status: unsubscribed
Write Status: writable
Device Facets:
Conversion: Default

OK Cancel

NOTE: Grayed-out fields are read-only and cannot be changed in this dialog.

2. Type a unique **Name** that describes the point you are configuring.
3. Select the point **Type** (read only or writable) for the object you are adding.
4. Configure the **Facets** as appropriate for the point type.

NOTE: Home Screen elements are limited to displaying numerical values only, any other objects presented on the Home Screen are shown in numerical format. NetSensor displays are limited to 4 characters for upper display values and 7 characters for lower display values.

Warning! Ensure Facets are unique enough to work properly with Net Sensor configurations. String displays beyond the character limit are truncated.

5. Select the **Tuning Policy Name**.
6. Select the appropriate **Niagara Action**.
7. Leave Conversion set to **Default**.
8. Click **OK** to add the point to the station.
The point appears in the Database list.
9. Add all BV points as necessary.

Configure a Multistate Variable Point

To configure a Multistate Variable Point, do the following:

1. Select the MSV point to add from the discovered list, as described in the section **Discovering and Adding Points**.

Name	Type	Enabled	Point Tag	Object Id	Facets	Tuning Policy Name	Niagara Action
MSV02	Enum Writable	true	MSV01	multiStateValue:1	range={ONE=0,TWO=1,THREE=2}	defaultPolicy	Ignore

Name: MSV02
Type: Enum Writable
Enabled: true
Point Tag: MSV01
Object Id: multiStateValue:1
Facets: range={ONE=0,TWO=1,THREE=2}
Tuning Policy Name: Default Policy
Niagara Action: Ignore
Read Status: unsubscribed
Write Status: writable
Device Facets:
Conversion: Default

OK Cancel

NOTE: Grayed-out fields are read-only and cannot be changed in this dialog, but some fields auto-update based on the selection you make.

2. Type a unique **Name** that describes the point you are configuring.
3. Select the point **Type** (read only or writable) for the object you are adding.
4. Configure the **Facets** as appropriate for the point type.

NOTE: Home Screen elements are limited to displaying numerical values only, any other objects presented on the Home Screen will be shown in numerical format. NetSensor displays are limited to 4 characters for upper display values and 7 characters for lower display values.

Warning! Ensure Facets are unique enough to work properly with Net Sensor configurations. String displays beyond the character limit are truncated.

5. Select the **Tuning Policy Name**.
6. Select the appropriate **Niagara Action**.
7. Leave Conversion set to **Default**.
8. Click **OK** to add the point to the station.
The point appears in the Database list.
9. Add all MSV points as necessary.

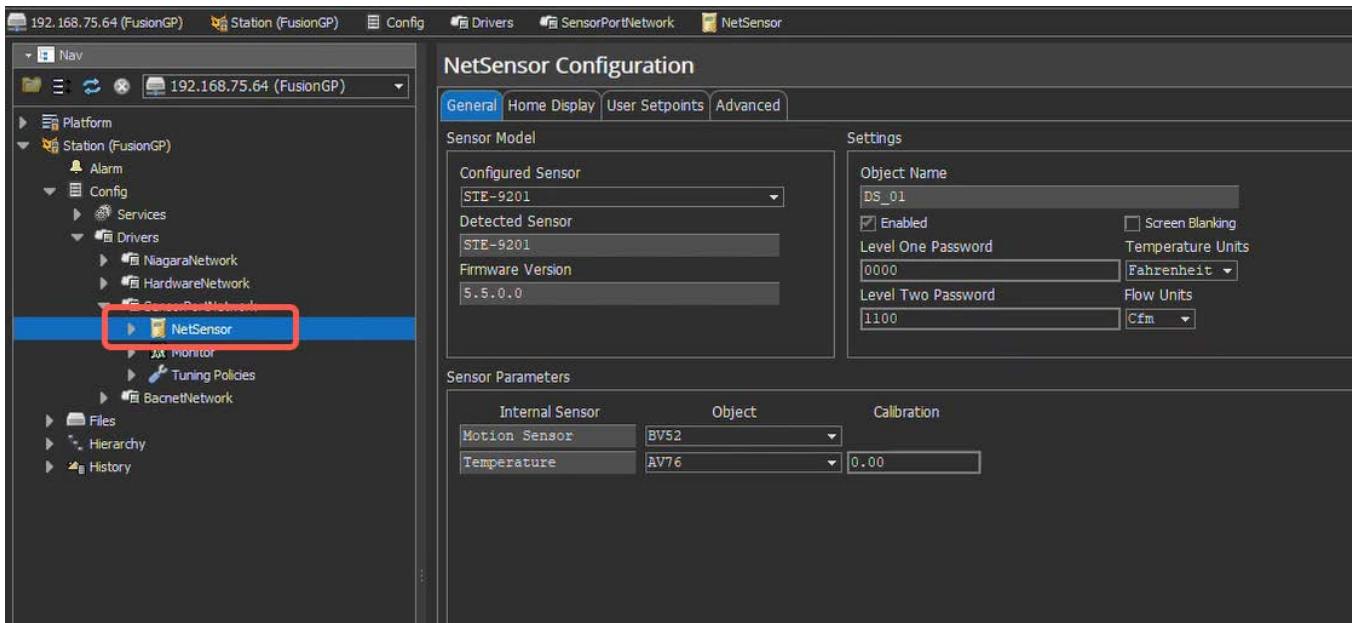
SELECTING AND CONFIGURING THE NETSENSOR

TIP: To reduce the file time spent writing to the NetSensor, you can make changes to multiple tabs before saving your configuration changes.

NetSensor Selection

To assign or select your NetSensor, do the following.

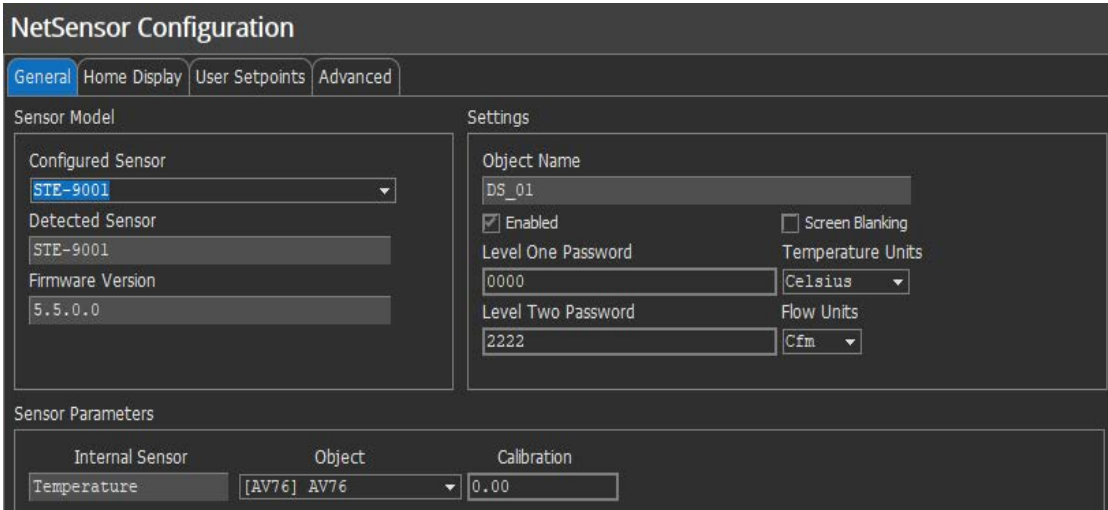
1. In the Nav tree, double-click **NetSensor** to open the NetSensor Configuration, **General** tab view.



2. Click the Configured Sensor drop-down arrow, select the appropriate sensor type, and set the Sensor Parameters as necessary.
NOTE: If a NetSensor is connected to the Sensor Port, the Detected Sensor and Firmware displays for your reference.

NetSensor Configuration Settings

The following table covers some of the standard configuration settings you need to be aware of when working with the NetSensor:



Setting	Description
Enabled	Enables NetSensor operation. WARNING! This needs to remain checked for proper operation.
Screen Blanking	Select the checkbox to blank the screen after a period of inactivity.
Level One Password	Access to User Setpoints is determined by the level one password.
Level Two Password	Access to the Advanced menus is determined by the level two password. NOTE: To access the Advanced menus see STE-9000 Series NetSensor documentation.
Temperature Units	The temperature units selected are used for an Integral Temperature sensor, and are also used for any values displayed when you select the temperature icon. WARNING! Analog Variables mapped to the NetSensor are unit-less in nature. Therefore, any value conversion (Celsius->Fahrenheit) needs to take place in Niagara and does not occur within the NetSensor.
Flow Units	Determines the icon to be used when you select the Flow icon for objects. WARNING! Analog Variables mapped to the NetSensor are unit-less in nature. Therefore, any value conversion (CFM->LPS) needs to take place in Niagara and does not occur within the NetSensor.
Assign internal Sensors	Based on the Model of sensor you select in the Configured Sensor drop-down, the available Internal Sensors are listed. These internal sensors are pre-mapped to designated variables. To change these mappings, select your desired variable from the Object drop-down list. NOTE: Some internal sensors support Calibration. WARNING! See STE-9000 Series NetSensor documentation before making any calibration adjustments.

Configure the NetSensor

The NetSensor configuration view is where you choose the various objects you want to display on the NetSensor. The NetSensor Home Display tab is where you can add up to eight (8) values in each of the two display areas:

- Home Screen Upper Display Values
- Home Screen Lower Display Values

Each value or object you add rotates through the upper or lower display based on the Display Time you set.

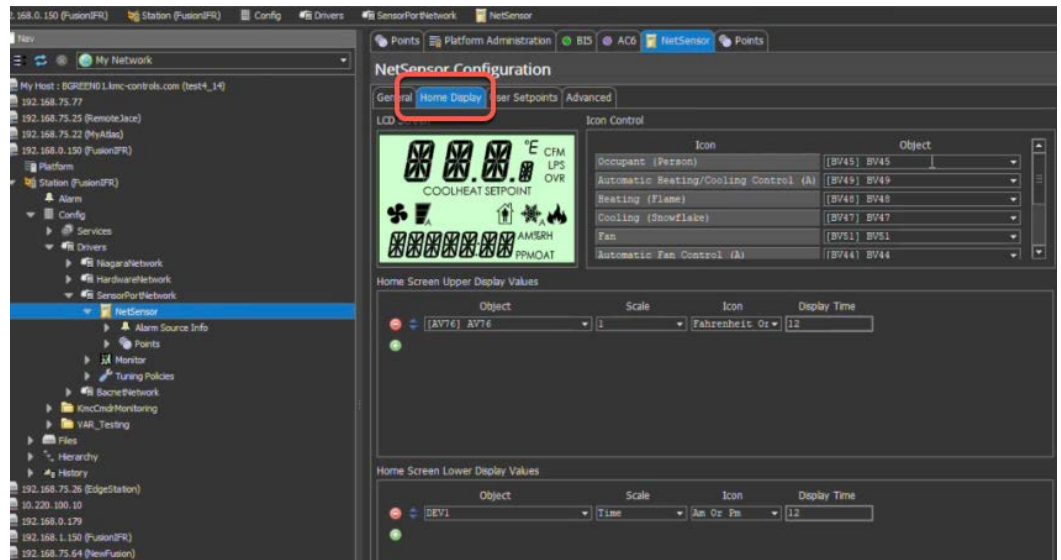
Note: The only supported type of communication device KMC Fusion supports are STE-9000 series devices, and only one (1) NetSensor is supported.

Warning! Mapping any Binary or Multistate variables to the Home Display results in the display only showing the numerical value for those objects.

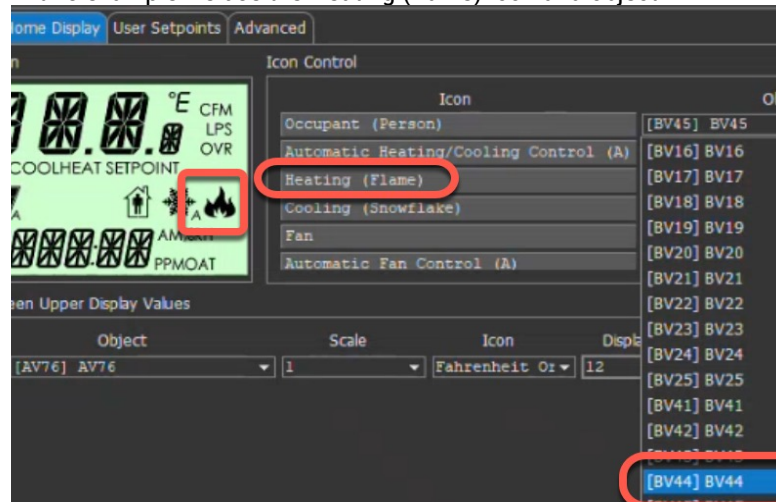
To adjust the NetSensor Icon mappings and settings, do the following in the tabs:

Home Display Tab

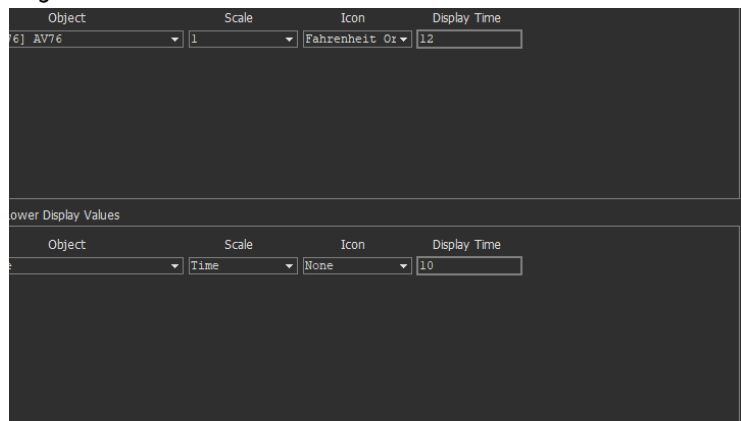
1. Click the **Home Display** tab



2. Under **Icon Control**, click the **Object** drop-down arrow on that Icon's row to view the available Objects, and then select the desired Object. In this example we use the Heating (flame) icon and object BV44.



3. Repeat step 2 as many times as needed to associate all Icons with an Object.
Note: All Icons are pre-mapped to Binary Variables, which are writable from Niagara.

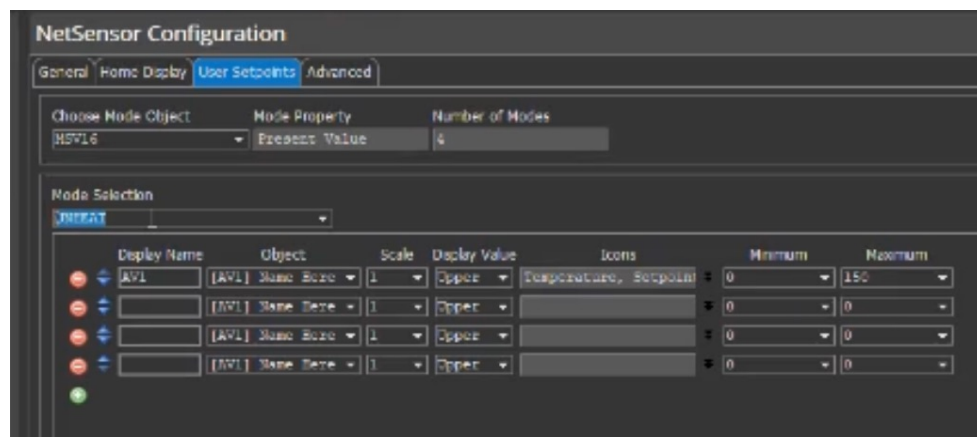


- To add an item to the either of the Upper or Lower displays, click the green plus (+) button in the desired section, click the **Object** drop-down arrow, and then select the appropriate **Object**. If you need to remove an item, click the red minus (-) sign.
NOTE: You can have up to eight (8) values in each display, and each rotates through sequentially based on the **Display Time** you set.
- Select desired **Scale**, **Icon**, and **Display Time** for each object that you add.

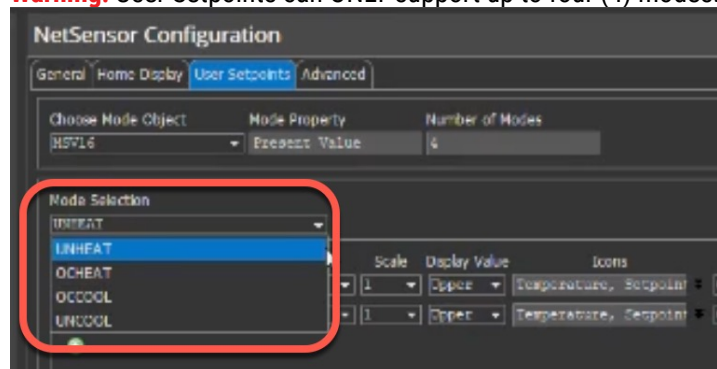
User Setpoints Tab

- Click the **Home Display** tab
- Click the **User Setpoints** tab. An example MSV16 is mapped by default, which you can remap, as necessary.

NOTE: Number of modes (Mode Selection drop-down) is determined by this selection, therefore you should first choose the Mode Object before making any further changes to the User Setpoints tab screen.



Warning! User Setpoints can ONLY support up to four (4) modes:



3. Click and select the desired **Mode Selection**.
4. For each Mode, click the green plus (+) button to add and configure as many objects as necessary.
Note: NetSensor variable adjustments with the up/down arrow buttons will be determined by the current Mode (value within the MSV defined in Mode Object). Object mappings in the Mode Selection should reflect the desired objects to be accessed based on the current Mode
5. Enter the desired **Display Name**.
NOTE: The Display Name has a 4-character limit.
6. Set the desired **Scale, Display Value, Icons, Minimum, and Maximum** for each object that you add.
Warning! You must configure Minimum and Maximum values for proper operation. Set the minimum and maximum values for all objects added.
Note: For Binary Variables, when an object reference is not used, you should use a minimum of 0 and a maximum of 1.
Note: For Multistate Variables, base the minimum and maximum on the number of states for the MSV that you selected.

Advanced Tab

Access to the Advanced Menus by the local NetSensor is determined by users with Password Level Two access. Use the Advanced Menus to set the setpoint access for a technician or trusted advanced users.

1. Click the **Advanced** tab and map objects to your **System Configuration** and **Setpoint Configuration** as necessary.
NOTE: To add a new row, click the green icon. To remove a row, click the red icon for that row.

NetSensor Configuration

General Home Display User Setpoints **Advanced**

System Configuration

Display Name	Object	Scale	Display Value	Icons	Minimum	Maximum
BV1	[BV1] BV1	1	Lower		0	1
	[AV1] AV1	1	Upper		0	0

Setpoint Configuration

Display Name	Object	Scale	Display Value	Icons	Minimum	Maximum
AV5	[AV5] AV5	0.5	Upper		0	100
	[AV1] AV1	1	Upper		0	0
	[AV1] AV1	1	Upper		0	0

2. Enter desired **Display Name**.
NOTE: The Display Name has a 4-character limit.
3. Set desired **Scale, Display Value, Icons, Minimum, and Maximum** for each object.
4. Click **Save** to save the NetSensor configuration.