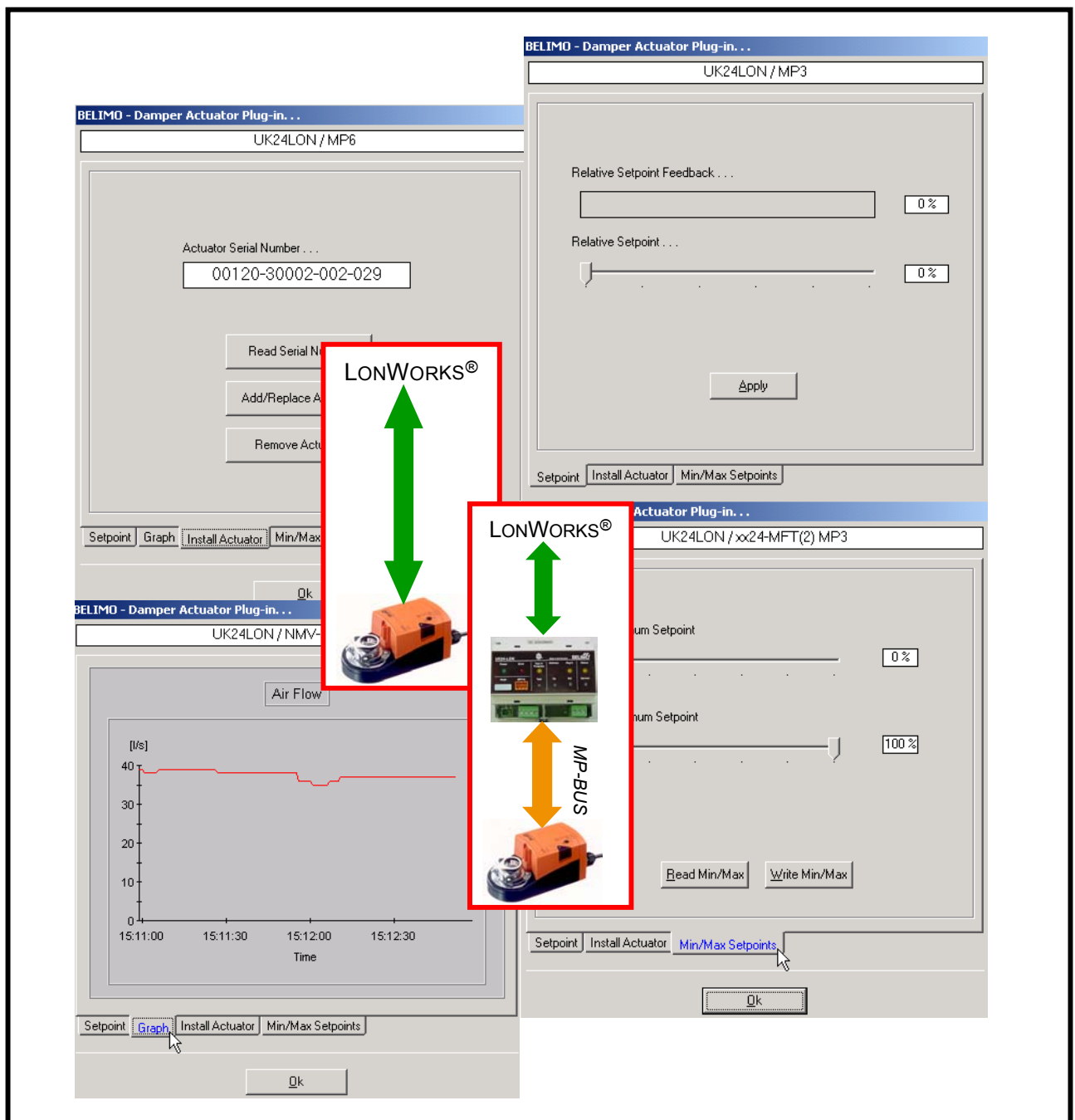
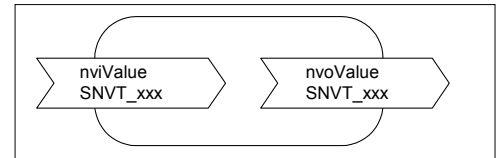


## 2. + 4. + 6. Actuator Plug-In Description / Documentation # Tools-007-E-1





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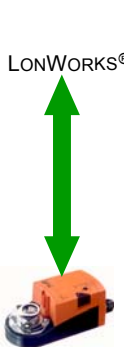

# Belimo Actuator Plug-In

## 1. General

The Belimo Damper "Actuator Plug-In" is a plug-in device with an LNS capability based on LonMaker. Its purpose is to make the commissioning of Belimo busable actuators much easier. In addition, the *Actuator Plug-In* can also be very helpful for monitoring the operation of existing systems.

## 2. Using the Actuator Plug-In

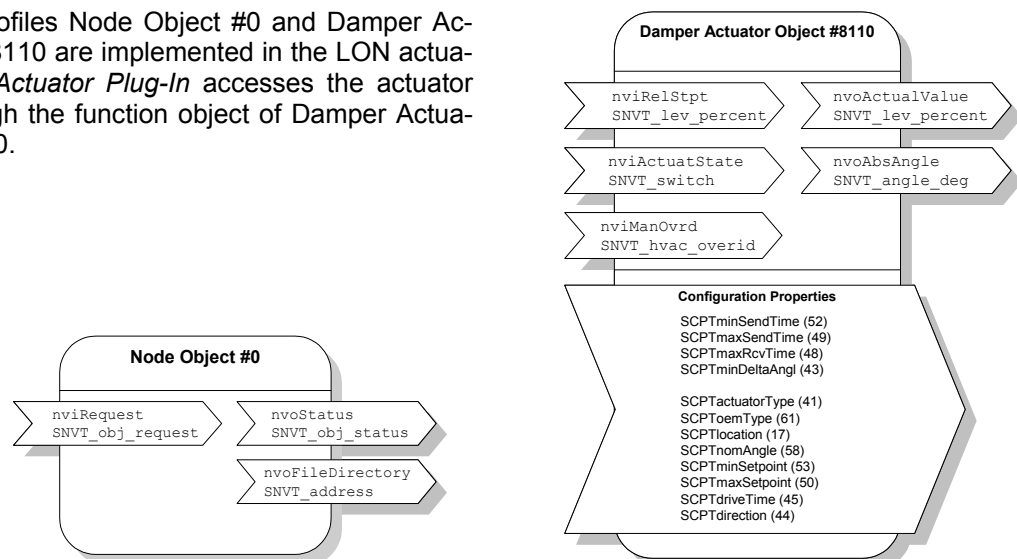
The "Actuator Plug-In" can be used with the following Belimo actuators:

Actuators which can be connected directly to a LONWORKS® network.	MFT / MFT2 actuators which can be connected to a LONWORKS® network through a UK24LON Gateway unit.
 <p><b>Damper actuators</b></p> <ul style="list-style-type: none"> <li>• AM24LON (US)</li> <li>• GM24LON (US)</li> <li>• AF24LON (US)</li> </ul> <p><b>Linear actuators for globe valves and SuperCompact control valves</b></p> <ul style="list-style-type: none"> <li>• NV24LON</li> <li>• NVF24LON</li> <li>• NVF24LON-E</li> <li>• NVS24LON</li> <li>• AS24LON</li> <li>• AVS24LON</li> </ul>	 <p><b>Damper actuators</b></p> <ul style="list-style-type: none"> <li>• NM24-MFT(2) • AM24-MFT(2)</li> <li>• GM24-MFT(2)</li> <li>• LF24-MFT(2) • AF24-MFT(2)</li> </ul> <p><b>Linear actuators for globe valves and SuperCompact control valves</b></p> <ul style="list-style-type: none"> <li>• NV24-MFT(2) • NVF24-MFT(2)</li> <li>• NVF24-MFT(2)-E • AV24-MFT(2)</li> <li>• NVS24-MFT(2) • AVS-MFT(2)</li> </ul> <p><b>VAV-Compact</b></p> <ul style="list-style-type: none"> <li>• NMV-D2M</li> </ul>

## 3. Accessing the Actuator Plug-In from function objects

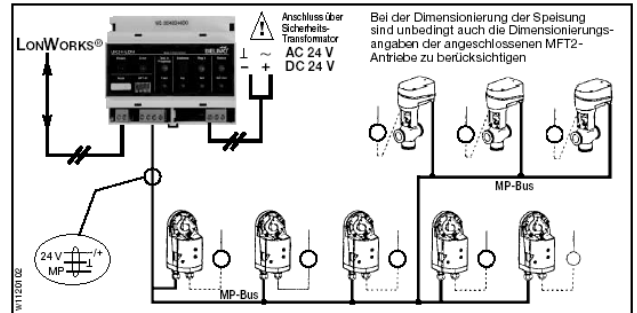
### 3.1 Actuator Plug-In access with LON actuators (actuators for direct connection to LonWorks)

The function profiles Node Object #0 and Damper Actuator Object #8110 are implemented in the LON actuator node. The *Actuator Plug-In* accesses the actuator functions through the function object of Damper Actuator Object #8110.



### 3.2 Actuator Plug-In access with MFT / MFT2 actuators

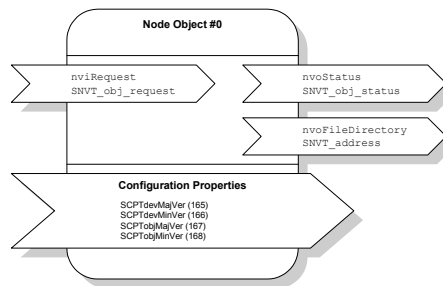
The Node Object #0 is implemented once in a UK24LON unit and the Damper Actuator Object #8110 eight times (once for each of the actuators that can be connected to a UK24LON unit). In addition, the Open Loop Sensor Object #1 is also implemented eight times. This object allows sensor values to be transferred to a LonWorks network.



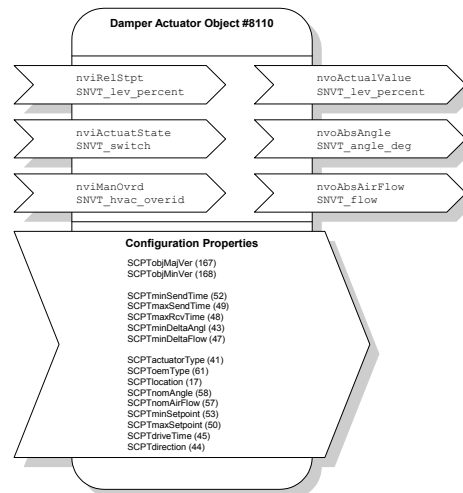
The **Actuator Plug-In** accesses actuators 1...8 through the function object of the corresponding Damper Actuator Object #8110.

The **Sensor Plug-In** accesses sensors 1...8 through the function object of the corresponding Open Loop Sensor Object #1 (a description will be found in separate documentation 2.+4.+6. **Sensor Plug-In # Tools-008-E-1**)

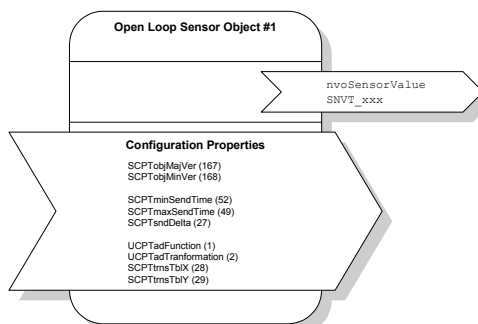
#### Node Object #0 1x implemented



#### Damper Actuator Object #8110 8x implemented



#### Open Loop Sensor Object #1 8x implemented



### 4. Installing under LonMaker 2.0 or 3.0

1. Extract file **DAPlugIn.zip** (DAPlugIn.cab, setup.exe, setup.lst) to a temporary folder.
2. Double-click on file setup.exe which is now in the temporary folder.
3. Follow the instructions given by the Setup program.
4. Setup will suggest the link..... \Programme\BELIMO LNS Actuator Plug-In\Damper Actuator.  
Accept the suggestion.
5. Copy the following files from the folder.....  
\Programme\BELIMO - LNS Plug-in\Damper Actuator to folder \LonWorks\import

```
mod_1_0a.xif  
mod_1_0a.xfb  
uk_1_1.xif  
uk_1_1.xfb  
uk_2_0.xif  
uk_2_0.xfb  
uk_3_0a.xif  
uk_3_0a.xfb
```

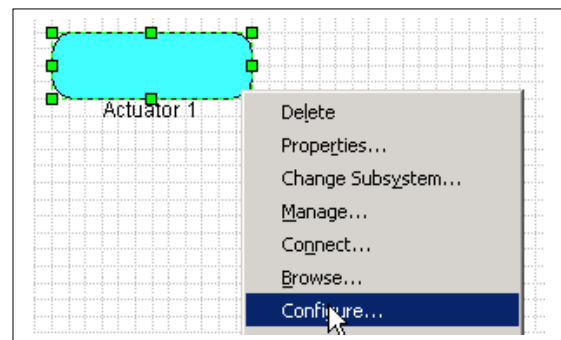
Application **uk\_3\_0a** is suitable for 8-times UK24LON units (LonWorks linking of 8 MFT(2) actuators and 8 sensors)

Application **mod\_1\_0a** is suitable for LON actuators (actuators incorporating a LON chip)

### 5. Starting the Actuator Plug-In

Procedure:

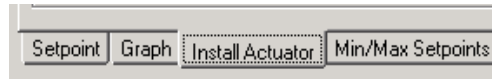
- Select the required actuator object (as Fig.)
- Select "Configure" (as Fig.)  
*Actuator Plug-In* will then start



## 6. Function pages of the Actuator Plug-In

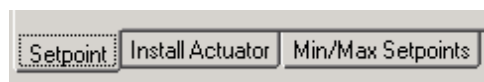
### 6.1 Four function pages for VAV-Compact NMV-D2M

Click on the appropriate buttons to choose between 4 different function pages in the case of the NMV-D2M.



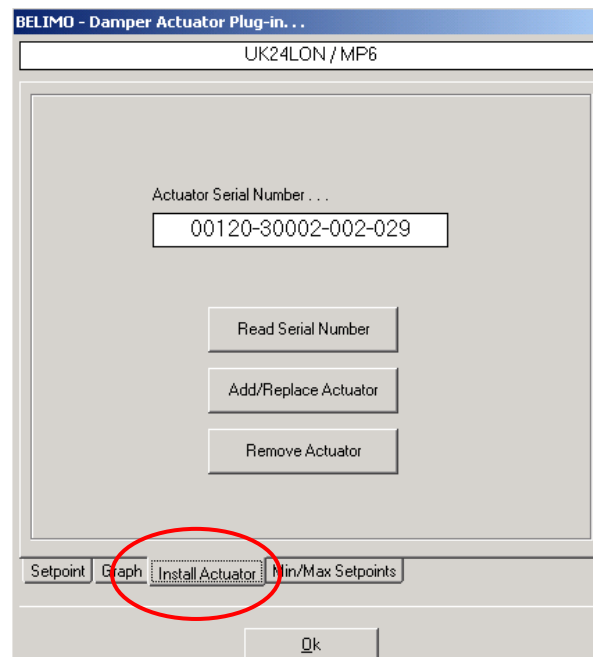
### 6.2 Three function pages for MFT(2) and LON actuators

Click on the appropriate buttons to choose between 3 different function pages in the case of MFT / MFT2 / LON actuators.

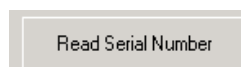


### 6.3 Function page: Install Actuator

This page allows actuators to be integrated into a Belimo MP-network, removed from an MP-network or identified. With LON actuators (actuators for direct connection to a LonWorks network) the page can also be used for simply reading out the Serial No. of the actuator. The buttons "Read Serial Number", "Add / Replace Actuator" and "Remove Actuator" are inoperative in the case of LON actuators.

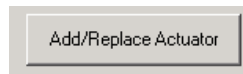


#### 6.3.1 Button: "Read Serial Number"

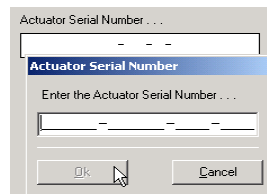


Pressing this button asks the actuator to give you its Serial No. The number appears in the Serial No. field.

### 6.3.2 Button: "Add / Replace Actuator"



Pressing this button brings up a field for entering the Serial No. of an MFT / MFT2 actuator. There are two options for using this field:

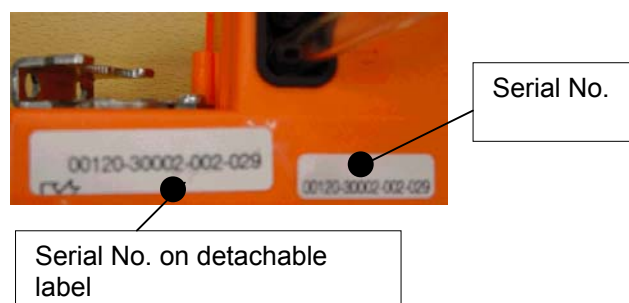


- a) **Add** - A new, non MP-addressed actuator can be assigned to a specific function block of the UK24LON unit. When the appropriate Serial No. of the required actuator is entered here and the OK button is pressed the actuator will automatically receive the appropriate MP address through the assignment of the function block. For example, if the *Actuator Plug-In* has previously been started on function block 3 the actuator will automatically receive MP address 4. (Function block 0 = Actuator MP1, Function block 1 = Actuator MP2, Function block 2 = Actuator MP3, etc.)
- b) **Replace** - An existing, possibly defective, actuator can be replaced by a new one. Enter the Serial No. of the new actuator in the field and press the OK button. The existing MP address will then be automatically replaced by the address of the new actuator.

When the Serial No. of an actuator that already exists in the network is entered it will automatically be assigned to the function block in which the *Actuator Plug-In* is active. At the same time the actuator receives the MP address corresponding to the function block.

#### Position of Serial Nos. on actuators

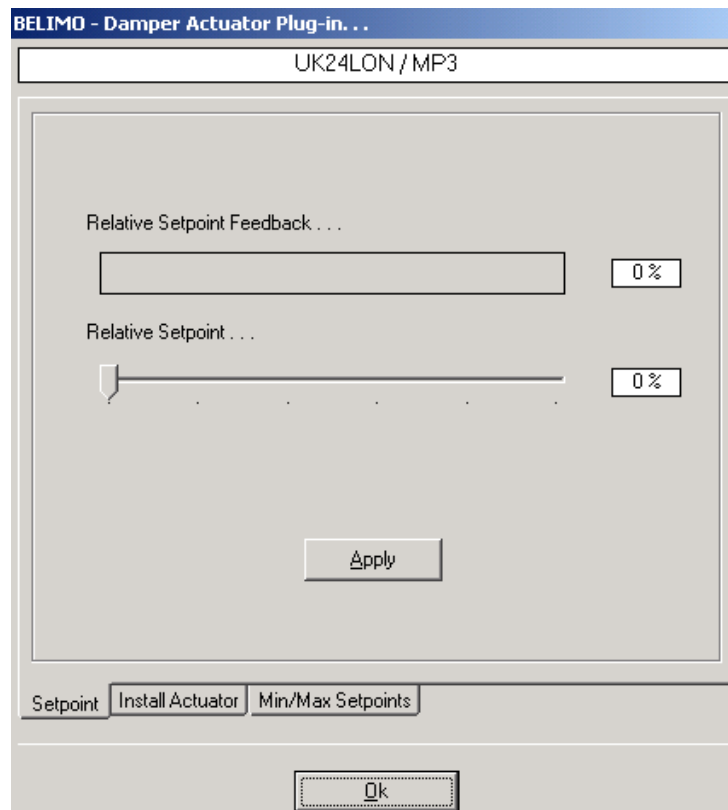
When MFT(2) actuators are delivered they carry a label bearing their individual Serial Nos. By means of this Serial No. an actuator can be assigned either a PP address or an MP1...MP8 address. An additional detachable label bearing the identical Serial No. is also attached to the actuator. When an actuator has been installed in a specific position in a system this additional label can be stuck on to the plan of the system in the same corresponding position. This provides a record of where the actuator with the corresponding Serial No. is installed in the building.



### 6.3.3 Button: "Remove Actuator"

Pressing this button de-addresses the actuator whose Serial No. is shown in the white field. In effect it isolates the actuator function block in LonMaker from the actuator.

### 6.4 Function page: Setpoint



A typical use of this page is for issuing, for test purposes when commissioning, an actuator with a specific setpoint (0...100%). The setpoint issued with the slide pointer acts on SNVT nviRelStpt (SNVT\_lev\_percent) of the function block.

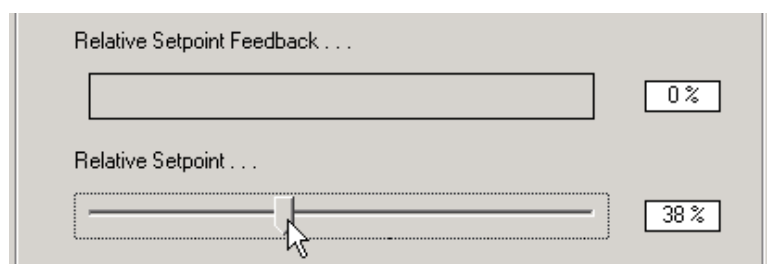
The effect of entering a 0...100% setpoint:

Type	Effect
VAV-Compact NMV-D2M	0...100% nominal flow rate
Damper actuators	0...100% angle of rotation
Valve actuators	0...100% lift

Note: When SNVT nviRelStpt is connected the setpoint that has been preset in the *Actuator Plug-In* only remains effective until the SNVT receives another setpoint from a different LON node.

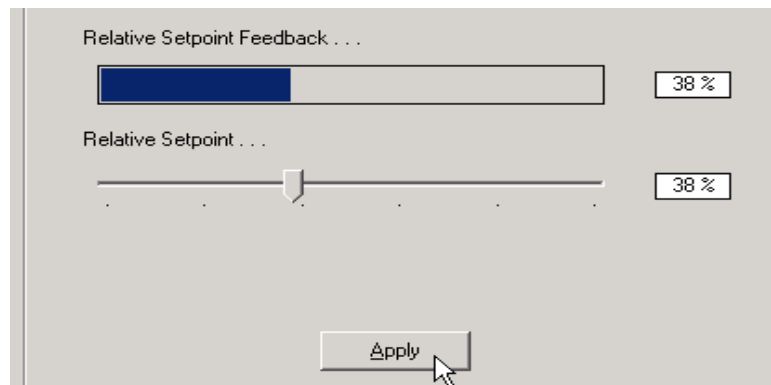
The procedure is explained by means of the following example:

Move the slide pointer to the required position (38% in the example)



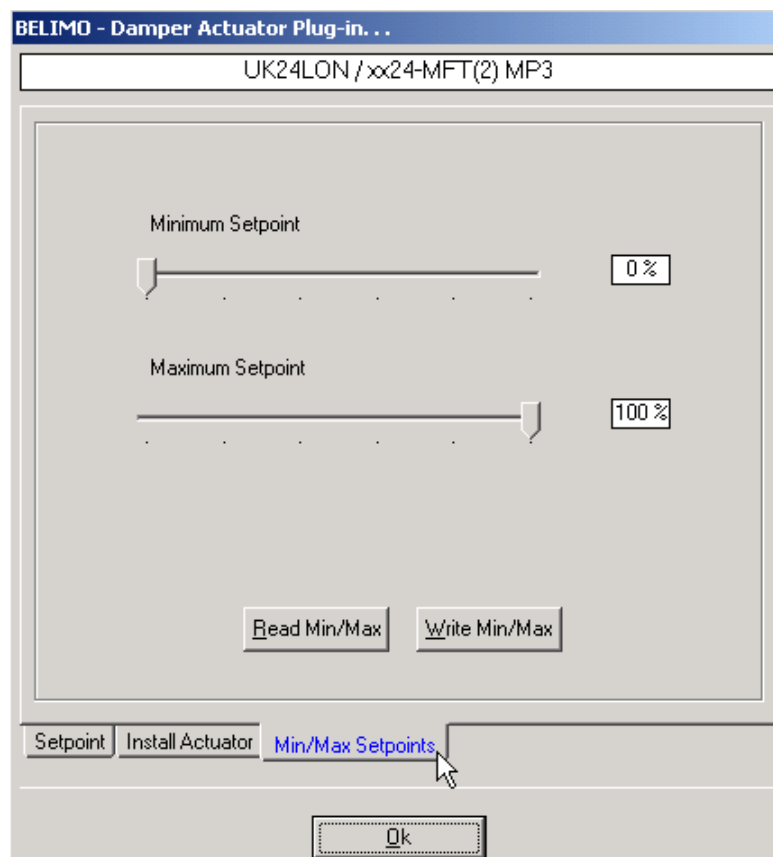


The “Feedback” bar shows the appropriate value as soon as the "Apply" button is pressed.



The actuator now receives the preset setpoint of 38%. When SNVT nviRelStpt is connected the setpoint will only remain valid until the SNVT receives another setpoint from a different LON node.

### 6.5 Function page: Min / Max Setpoints



Depending on the type of actuator involved this page can be used for limiting the angle of rotation, the lift or the volumetric flow to a minimum or maximum. A minimum or maximum value can be defined using the slide pointers. Pressing the "Read Min/Max" button causes the values preset in the actuator to be read out from the actuator, while pressing the “Write Min/Max” button causes them to be written into the actuator.

The effect of entering 'Maximum Setpoint':

Type	Max. limit to.....
VAV-Compact NMV-D2M	0... 100% nominal flow rate
Damper actuators	0... 100% angle of rotation
Valve actuators	0... 100% lift

The effect of entering 'Minimum Setpoint':

Type	Min. limit to.....
VAV-Compact NMV-D2M	0... 100% specified maximum setpoint
Damper actuators	
Valve actuators	

### 6.6 Function page: Graph (this page only appears for the NMV-D2M)

For the NMV-D2M this page shows the actual volumetric flow rate in l/s as a function of time that is currently effective. The indicated value of volumetric flow corresponds to that output at SNVT\_flow. The scaling of volumetric flow and time is carried out automatically by the *Actuator Plug-In*. This page is ideal for monitoring air volume control units.

