

Two-Point Controller

NV4SCRIPT Example

System Requirements

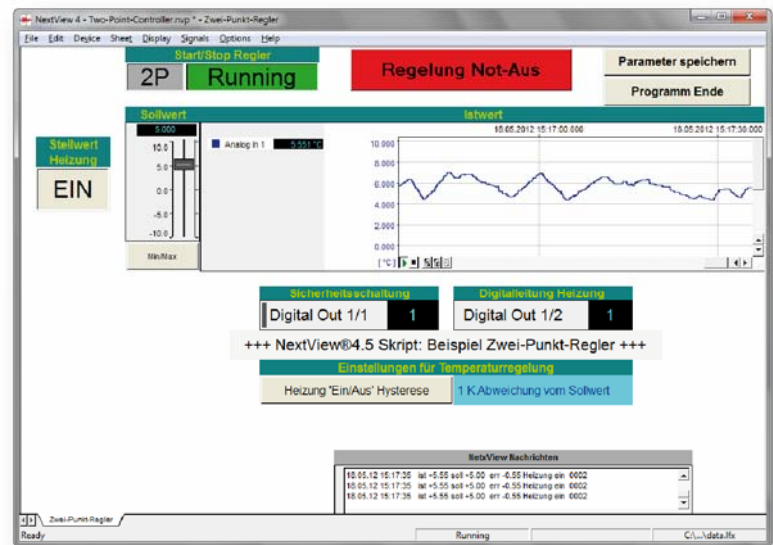
- DAQ system with 1x AIn, 2x DigOut (example created with USB-AD16f and 16 formula channels)
- Miscellaneous:
e-mail connection via SMTP server

Software

- NextView®4 Professional
- NextView®4 Script
- Version: 4.6 and higher

System Configuration

- Live data frequency: 10Hz (depending on DAQ system and scan settings)



Description

Two-point controllers feature an input and an output with two switching states. They set the output to "ON" or "OFF" depending on a mostly hysteresis-afflicted switching criterion of the input signal.

A typical example for a two-point controller is the temperature control with a thermostat. It turns on a heating when the temperature is below a defined minimum temperature.

The NextView4 Script example "Two-Point Controller" implements a temperature control of this kind. A desired value is defined as optimum temperature value as well as the deviation from the desired value from which a heating is activated.

A safety circuit to implement an "Emergency Stop" function can be realized with the first digital line.

1 Quickstart

1.1 Start Script Example

The configuration (*.nvc), project (*.nvp), and script files (*.nvs) of the script example have been installed in the folder "Script Examples" together with the external programs used. They are available in the following directory (if default settings have been used).

- **Windows® 7/8:** C:\Users\- **Windows® XP:** C:\Documents and Settings\

If using default settings during installation, the script example Two-Point-Controller.nvp can be opened via the Windows® 7/XP Start menu or the Windows® 8 Start screen as follows:

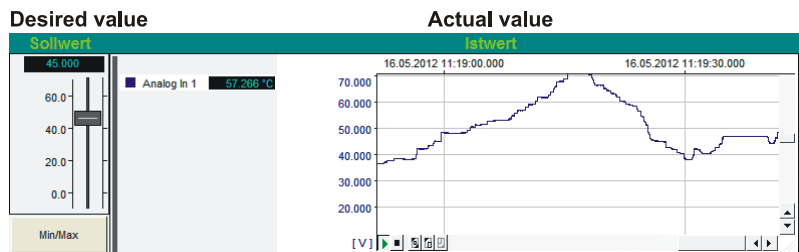
- **Windows® 7/XP:** Start / (All) Programs / NextView 4.6 / Script Examples / Two-Point Controller
- **Windows® 8:** Right-click Start screen / "All Apps" / NextView 4.6 / Two-Point Controller

1.2 Controller Settings

The slider "Sollwert" is used to set the desired value for analog input 1.

The lower/upper value for the displayed scale can be defined for the sliders via the button "Min/Max".

The actual values of the analog input are shown in the live display.



The two-point controller is activated by pressing the top left button "2P". The text field aside indicates if the controller is on ("Running") or off ("STOPPED").

Start/Stop controller
Start/Stop Regler
2P **Running**

If the two-point controller is off, the slider "Stellwert" connected to analog output 1 can be used to test the reaction of the system if the heating is on or off. As soon as the two-point controller has been turned on, this value cannot be changed manually anymore but is regulated by the controller.

Control value Stellwert Heizung
ON **EIN**

A digital multimeter shows the current state of the "Digitalleitung Heizung" (Digital line heating) regulated by the control value.

Digital line heating Digitaleitung Heizung
Digital Out 1/2 **0**

The "Regelung Not-Aus" switch (controller emergency stop) disables the two-point controller and sets the control value for heating to 0 ("AUS" - OFF). The state of the safety circuit is also indicated by a digital multimeter.

Safety circuit Sicherheitsschaltung
Digital Out 1/1 **1**

Controller emergency stop Regelung Not-Aus

The switching threshold to turn on/off the heating is shown in the section "Einstellungen für Temperaturregelung" (Settings for temperature control). The value presented in Kelvin is specified as the difference to the desired value.

Settings for temperature control Einstellungen für Temperaturregelung
Heizung 'Ein/Aus' Hysterese **1 K Abweichung vom Sollwert**
Heating 'ON/OFF' hysteresis ... deviation from deysired value

To make changes for the deviation from the desired value, the button on the left must be clicked.

Actual, desired, and control value, deviation, and the state of the digital line for the heating can be recorded for analysis purposes while controlling is on. They are saved in a 2P-*.csv file in the same directory.

Recording Aufzeichnung

If the top right button is pressed, set parameters will be saved in the file 2P.ini and be used at the next start of the project.

Parameter speichern
Programm Ende

To exit the program, the button "Programm Ende" is pressed.

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