Ctek
Industrial Control

Remote Configuration of Automation Control for Irrigation

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Introduction

Ctek Automation Control supports a range of applications where it is convenient to remotely configure certain system and device characteristics. Ctek Automation Control provides a remote configuration module to address these applications and supports various methods for loading configuration parameters.

Applicability

This document is applicable to the following hardware models:

- Z4500XXX
- Z4550XXX

This feature is enabled from firmware release 7.00.09

Methodology

1. The configuration file to be loaded must be created in the JSON format defined in this document.

2. The configuration file must be loaded onto the target device using:
    a. FTP
    b. HTTP post

Configuration Format

The configuration is taken as a JSON formatted file that describes input and output parameters. Inputs define controller status and the current configuration supports a maximum of 42 controller. Therefore, valid inputs must be in the range of 001 through 042. Outputs define individual valves and the current configuration supports a maximum of 128 valves. Therefore, valid outputs must be in the range of 001 through 128

Configuration Type: “Type”:<String>

An ID that identifies the following JSON structure to be a configuration for irrigation. Type must be set to: 100

Input Definition: “Inputs”:<Array>

Inputs is an array of objects. Each object contains elements that define the configuration of an input which represents a single TWIG controller. The current configuration supports a maximum of 42 controllers. Therefore, valid inputs must be in the range of 001 through 042. The following elements may be included in an input configuration object:

Input Element: “Number”:<String>

Number identifies the linear input number within Automation Control that this object will configure. Valid values are 1 through 42.

Input Element: “Name”:<String>

Number identifies the name associated with this input. This a text is a text string of 20 characters or less.

Input Element: “Address”:<String>

Address identifies the TWIG address of the specific controller.

Input Element: “Rate”:<String>

Rate identifies the rate at which the specific controller will be polled for status. Rate is defined in seconds.

Input Element: “Rssi”:<String>

Rssi identifies the low RSSI threshold for the specific controller.

Input Element: “Battery”:<String>

Rssi identifies the low battery threshold for the specific controller.

Output Definition: “Outputs”:<Array>

Outputs is an array of objects. Each object contains elements that define the configuration of an output which represents a single valve. The current configuration supports a maximum of 128 valves. Therefore, valid outputs must be in the range of 001 through 128. The following elements may be included in an output configuration object:

Output Element: “Number”:<String>

Number identifies the linear output number within Automation Control that this object will configure. Valid values are 1 through 128.

Output Element: “Name”:<String>

Number identifies the name associated with this output. This a text is a text string of 20 characters or less.

Output Element: “Address”:<String>

Address identifies the TWIG address of the specific valve.

Sample Configuration


```
{
        "Type": "100",
        "Inputs": [
          {
            "Number":       "001",
            "Name":         "Block 5 West",
            "Address":      "B005610",
            "Rate":         "1800",
            "Rssi":         "-88",
            "Battery":      "1.5"
          }
        ],
       "Outputs": [
          {
            "Number":       "001",
            "Name":         "Block 5 West Valve 1",
            "Address":      "B005611"
          },
          {
            "Number":       "002",
            "Name":         "Block 5 West Valve 2",
            "Address":      "B005612"
          }
      ]
}
```


Mode of Operation

Configuration updates must include a complete system configuration. Partial updates of existing configurations are not supported. When a new configuration is received, the previous input and output configuration will be deleted and replaced by the new configuration.

Posting a Configuration Remotely

New configurations can be manually loaded in the specified area or they can be pushed remotely. To load a new configuration remotely simply post a JSON configuration to the device. Configurations can be sent using an HTTP Post to the controller's web server at http://mydevice.com/cgi-bin/rtu_setschedule.cgi

This URL on the controller will only accept HTTP POST requests with JSON in the body. Content type should be set to application/json. To post the configuration, the controller must have a user account with asmin privileges. The user can be created through the web administration interface on the controller.

The JSON in the body of the HTTP POST request must be an object that includes the properties username, password and schedule as seen below. The configuration element is just the JSON configuration object described in the previous section.

Sample JSON for HTTP POST

```
{
  "username":   "name",
  "password":   "pass",
  "configuration":
  {
          "Type": "100",
          "Inputs": [
           {
              "Number":          "001",
              "Name":            "Block 5 West",
              "Address":         "B005610",
              "Rate":            "1800",
              "Rssi":            "-88",
              "Battery":         "1.5"
            }
         ],
         "Outputs": [
          {
              "Number":          "001",
              "Name":            "Block 5 West Valve 1",
              "Address":         "B005611"
           },
           {
              "Number":          "002",
              "Name":            "Block 5 West Valve 2",
              "Address":         "B005612"
           }
        ]
  }
}
```