Ctek
Industrial Control

Data over Serial with Automation Control

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Introduction

Using the Automation Application, Ctek's Z4500 and Z4550 Series platforms now allow custom serial data to go out the devices RS-232 or RS-485 serial interface on user defined conditions. This document will describe how to use the Automation Control Application to enable this feature.

Applicability

This document is applicable to the following hardware models:

- Z4500XXX
- Z4550XXX
- Z44009XX
- Z42009XX

This feature is enabled from firmware release 6.00.12.05 (selective update 0005) and greater.

Methodology

The following procedure outlines the steps to be completed in order to enable custom serial data communications on user defined conditions:

1. Define the data stream to be sent in system file opt.rtu_send_text
2. Create a program that uses function Send Text To Com Port
3. Create a Virtual Digital Output on Pin 1
4. Tie the program to a state of the Virtual Output

Implementation

Define the Serial Data to Send

Up to 10 custom data strings can be defined for use. To define the data, edit the following system file:

/etc/conf.d/opt.rtu_send_text

```
CTEKMSG0="Sample message 0\n\r"
CTEKMSG1="\"Sample message 1\"\n\r"
CTEKMSG2="\'Sample message 2\'\n\r"
CTEKMSG3="\\Sample message 3\\\n\r"
CTEKMSG4="Sample message 4\x0a\x0d"
CTEKMSG5="Sample message 5\n\r"
CTEKMSG6="Sample message 6\n\r"
CTEKMSG7="Sample message 7\n\r"
CTEKMSG8="Sample message 8\n\r"
CTEKMSG9="Sample message 9\n\r"
```

The file contains 10 sample data strings, CTEKMSG0 through CTEKMSG9. The data must be enclosed around quotation marks. The string will be parsed as ascii data with the following exceptions:

1. \n will be parsed as a single newline '\n'
2. \r will be parsed as a single return '\n'
3. \x will parse the following 2 characters as hex data

Create Send Data Program

From the Automation Control configuration area:

1. Select Programs and New Program
2. Enter the following program:

Name: Send Data
1. Send Text To Com – 1 0

This program will send the data of CTEKMSG0 (defined by t 0 in the second parameter) in file opt.rtu_send_text through the RS-232 com port. To use the RS-485 port (TR1), change the first parameter to 2.

Trigger Send Data via Virtual Digital Out

Assuming the first module in the system is Virtual I/O module, from the Automation Control configuration area:

1. Select **Outputs** and click on the button to configure Virtual **Output 1**
2. Select the **Digital** type tab
3. Give the output a **Name** and use the table below to define the pin. Define all other options as necessary.

Options	Value
Initial Value	Off
State	Off
Shutoff Timer	5
On Program	Send Data
Off Program	Off

Run Configuration

The configuration is now complete and ready to be executed. From the configuration screen of Automation Control click on **Run Configuration**.

The data string of CTKMSG0 in opt.rtu_send_text will be sent over RS-232 when Virtual Input 1 is triggered On. The input will revert back to Off after 5 seconds so that it can be triggered again when necessary. This allows for communication on demand. However, by setting up a Virtual Input, the user can define thresholds based on time, temperature, or any available input source and call the Send Data program for a fully automatic implementation.