DF1-SLC50x

straton user guide – Rev. 6

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straton

Content

1. Overview

This tutorial will guide you through the configuration of DF1 protocol for SLC500 and SLC5/0x PLCs.

2. Requirement and setup

Requires straton 8.6 Editor and Runtime, or:

- straton 8.5 Workbench completed with K5BusDF1.dll in its \IOD folder
- straton 8.5 Runtime completed with the T5BusExDF1.dll driver.

3. Create and configure an application

3.1. Create configuration

Open the IO Drivers window ( ), insert a configuration ( ) and select the "DF1 – SLC500 – SLC5/0X" bus driver.

The configuration is entered in a 4-level tree:

Root: the DF1 protocol

- Serial communication port
  - DF1 request
    - Exchanged variable

Use the following toolbar buttons to:

Insert a communication port

Insert a DF1 request

Insert a variable

Below are the properties you need to fill for a communication port:

Port	Name and settings of the COM port, e.g.: COM1:19200,N,8,1
Checksum	CRC or BCC
Station number	Host device number (identifies the SRATON runtime on DF1)
Delay between requests	Duration in milliseconds of the time to wait in between two consecutive requests sent on DF1
Description	Free comment text

Below are the properties you need to fill for a communication request:

Mode	READ or WHITE
Device ID	PLC device ID according to DF1 addressing
PLC type	(not used at this time)
Address: type	Type of the DF1 file
Address: file	Index of the DF1 file
Address: element	0-based offset of the register in the file
Size	Size of data to be read or written, in bytes (1 register = 2 bytes) Refer to the DF1 specification for size limitations
Activation	Activation mode for the request. Can be: Periodic: sent periodically On request: sent on the change of an IEC variable On change (for WRITE): sent when data changes
Nb. Trials	Number of trials before rising an error
Period	For a PERIODIC request, period in milliseconds
Period on error	For a PERIODIC request, period in milliseconds in case the last exchange was not successful. This is useful not to slow down the communication with too many timeouts when a device is out of service.
Description	Free comment text

Below are possible error codes reported for requests:

0	No error
1	Timeout waiting for answer
3..10	Frame error or invalid BCC/CRC
128	Error reported by DF1 – refer to the DF1 specifications for your PLC

Below are the properties you need to fill for a variable:

Symbol	Name of a declared variable
Mode	Select “Data exchange” for exchanging read of written DF1 data with a variable. See the table below for other modes.
Location	Byte offset and format of the data in the DF1 packet
Location: Bit	Bit number in the specified byte in case of BIT format
Location: String length	Length of the data (bytes) in case of STRING format
Scaling: Range	For scaling, this is the scale of the stratonvariable
Scaling: Signal	For scaling, this is the scale of the DF1 data

Below are specific modes for a variable:

Port OK	On input: TRUE if the port is correctly open
Request active	On input: TRUE if the request is activated
Request in progress	On input: TRUE if the request is currently on-going
Request error	On input: TRUE is the request on error the last time
Send count	On input: number of times the request was sent
Error count	On input: number of times the request was on error
Last error	On input: code of the last error for this request
Last DF1 error	On input: DF1 error code if last error is 128
Cmd: pause port	On output: if TRUE, any communication is suspended on this port
Cmd: Activate request	On output: for a “ON REQUEST” request, set the variable to TRUE to send the request. The variable will be automatically reset to FALSE when the request is sent.
Port OK	On input: TRUE if the port is correctly open
Request active	On input: TRUE if the request is activated

3.2. Start the application

Download the application to the runtime:

- Select the communication parameters in menu Tools/Communication Parameters
- Establish the connection through menu Project/Online

RESULT IS:

The download is successful and application starts correctly.

The runtime is not started or communication parameters are wrong.

The application is not yet downloaded or an error occurs during startup. More detail can be found in the output view.

4. Frequently Asked Questions

HOW TO USE EFFICIENTLY DF1?

Any request requires some exchange time in the complete exchange loop for all requests configured on a port. It is recommended to configure/program your PLC in order to group variables to be read or written in few file areas in order to minimize the number of requests.