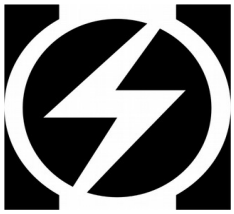
OSHMI



Open Substation HMI

S7 Client Protocol Driver

Configuration Manual

Version 0.1

© 2014-2019 Ricardo L. Olsen

Introduction

This driver uses the SHARP7/SNAP7 project by Davide Nardella from:

https://sourceforge.net/projects/snap7/

Using this driver it is possible to connect OSHMI to “n” PLC, RTU’s or other generic IED’s with the Siemens S7 protocol.

This driver is not a gateway, it only directs data to OSHMI.

The driver is build with the DOTNET CORE 3.1 framework, so it requires a compatible updated OS/environment.

Configuration

To understand the configuration parameters of this protocol is important to study also the SHARP7 documentation from the protocol library. Each type of PLC has it’s own connection parameters, please refer to the SHARP7 documentation.

The driver config file is c:\oshmi\conf\s7client.ini. This file has the following format:

```
; Define S7 server IED
[RTU_1]
IP=127.0.0.1
CONNECTION_TYPE=2
RACK=0
SLOT=0
LOCAL_TSAP=0x200
REMOTE_TSAP=0x200
PASSWORD=

; Read data from PLC and send to OSHMI points
;      DATA_TYPE AREA   DB  OFFSET    AMOUNT   OSHMI_POINT_NUMBER DELAY_MS
READ_1=BYTE      0x84   1   0x0000      5      60001                 0
READ_2=BIT       0x84   1   0x0010      5      81000                 0
READ_3=WORD      0x84   1   0x0010      1      60000                 0
READ_4=DWORD     0x84   1   0x0030      5      83000                 0
READ_5=REAL      0x84   1   0x0040      5      84000                 0
READ_6=COUNTER   0x1C   0   0x0000      5      85000                 0
READ_7=TIMER     0x1D   0   0x0000      5      86000              1000

; Write OHSMI point value to PLC
;       DATA_TYPE AREA   DB  OFFSET     OSHMI_POINT_NUMBER  BIT
WRITE_1=BIT       0x84   1   0x0000     64150               0
WRITE_2=BYTE      0x84   1   0x0000     64162               0
WRITE_3=REAL      0x84   1   0x0701     90001               0
WRITE_4=WORD      0x84   1   0x0010     94000               0
...
[RTU2]
…
```

Multiple slaves (servers) can be defined in the configuration file [RTU_1], [RTU_2], [RTU_*N*], …

For each slave there are a read and a write list.

Read lists are queues of data gathering. Each read define a range of reads from the slave to be transfered from the PLC to OSHMI. The PLC read must define the data type (BIT, BYTE, WORD, DWORD, INT, DINT, REAL, COUNTER or TIMER), the area, database (if not a database area, this parameter is ignored), starting offset for the data and amount. It must be provided the initial OSHMI point number to transfer the data (point numbers must be in sequence for each read).

Write lists define area to be written when an OSHMI command is issued. Just one value is written for each command. The OSHMI point number parameter define the OSHMI command point that will be captured and the value will be written to the PLC area/db/offset, using the specified data type.