Chapter 17   Various Communication Projects

RFID

This lab requires students to build the set-up with the equipment supplied and provide a resulting system capable of reading and writing to multiple tags and being able to demonstrate the operation to the instructor:

This is the manual for the RF200 system. It covers transponders and readers but no the configuration/setup:

https://support.industry.siemens.com/cs/us/en/view/109766065

This is an application example specific to the equipment you have:

https://support.industry.siemens.com/cs/us/en/view/109483367

This is a full list of application examples.

https://support.industry.siemens.com/cs/us/en/view/109483416

An addition to this lab requires the student to explore various formats for RFID tags and implement one of the formats on the tags provided.

PLC to PLC Communication

Demonstrate a communication between two PLCs using Ethernet

This lab requires students to build the set-up with the equipment supplied and provide a resulting system capable of reading and writing data.

Easy BookManual, 01/2015, A5E02486774-AG139 - Easy to communicate between devices

and

Youtube - Siemens PLC to PLC Communication PUT GET Easy Guide
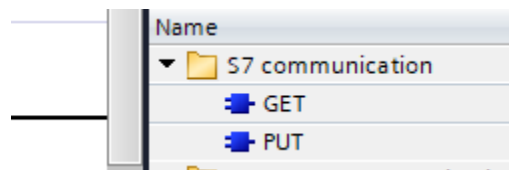
From the Help Request from TIA Program, the following descriptions for GET and PUT:

 GET: Read data from a remote CPU

Description

With the instruction "GET", you can read data from a remote CPU.

The instruction is started on a positive edge at control input REQ:

- The relevant pointers to the areas to be read out (ADDR_i) are then sent to the partner CPU. The partner CPU can be in RUN or STOP mode.
- The partner CPU returns the data:
  - If the reply exceeds the maximum user data length, this is displayed with error code "2" at the STATUS parameter.
  - The received data is copied to the configured receive areas (RD_i) at the next call.

- Completion of this action is indicated by the status parameter NDR having the value "1".

Reading can only be activated again after the previous reading process has been completed. Errors and warnings are output via ERROR and STATUS if access problems occurred while the data was being read or if the data type check results in an error.

PUT: Write data to a remote CPU

Description

You can write data to a remote CPU with the instruction "PUT".

The instruction is started on a positive edge at control input REQ:

- The pointers to the areas to be written (ADDR_i) and the data (SD_i) are then sent to the partner CPU. The partner CPU can be in RUN or STOP mode.
- The data to be sent is copied from the configured send areas ((SD_i). The partner CPU saves the sent data under the addresses supplied with the data and returns an execution acknowledgment.
- If no errors occur, this is indicated at the next instruction call with status parameter DONE = "1". The writing process can only be activated again after the last job is complete.

Errors and warnings are output via ERROR and STATUS if access problems occurred while the data was being written or if the execution check results in an error.

PLC to Device ASCII Communication

Demonstrate a communication between two PLCs using an ASCII communication protocol (RS422, 232) or Ethernet.

This lab requires students to build the set-up with the equipment supplied and provide a resulting system capable of reading and writing data to an external device.

Communication		
Name	Description	Version
▼ 📁 Open user communicati...		V3.1
TSEND_C	Send data via Ethernet ..	V2.1
TRCV_C	Receive data via Ethern..	V2.1
▼ 📁 Others		
TCON	Establish communicati...	V3.0
TDISCON	Terminate communica...	V2.1
TSEND	Send data via commun..	V3.0
TRCV	Receive data via comm..	V3.0
TUSEND	Send data via Ethernet ..	V3.0
TURCV	Receive data via Ethern..	V3.0
T_CONFIG	Configure interface	V1.0
▼ 📁 WEB Server		V1.1
WWW	Synchronizing user-def...	V1.1

▼ 📁 Others		
▼ 📁 MODBUS TCP		V3.1
▪️ MB_CLIENT	Communicate via PROF...	V3.1
▪️ MB_SERVER	Communicate via PROF...	V3.1
▼ 📁 Communication processor		
▶ 📁 PtP Communication		V2.3
▶ 📁 USS communication		V3.1
▶ 📁 MODBUS (RTU)		V3.1
▶ 📁 Point-to-point		V1.0
▶ 📁 USS		V1.1
▶ 📁 MODBUS		V2.2
▶ 📁 GPRSComm: CP1242-7		V1.3
▶ 📁 TeleService		V1.9

Some examples can be found at the following youtube videos:

S7-1200 Modbus RTU
Siemens S1200 Modbus RTU Slave test
S7 1200/S7-1500 As Modbus RTU Master Reads 5 Modbus Slaves
Siemens S7-1200 Modbus RS422/485 Communication
How do you establish a MODBUS-RTU communication with STEP 7 (TIA Portal) for the SIMATIC S7-1200?
S7-1200 MODBUS RTU WITH TEMPCONTROLLER