Interface description of

CHB-C-N Telnet Communication Function Block for Siemens TIA

Function-block is free to use. No liability for any mistakes!

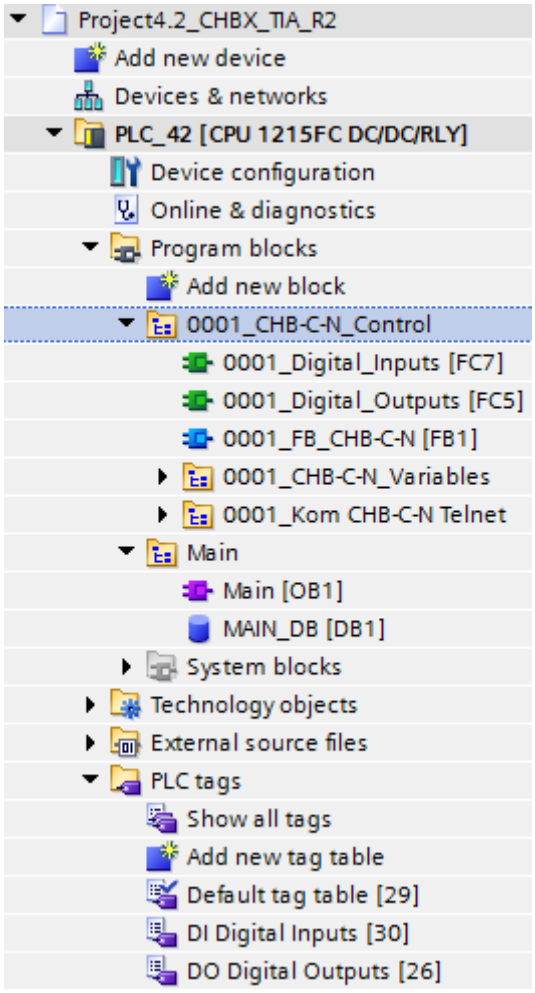
Tested and approved with Siematic S7-1200 Fw 4.2

TIA Version 14

The CHB-C-B function block function provides the option to control the Festo Checkbox via Telnet communication.

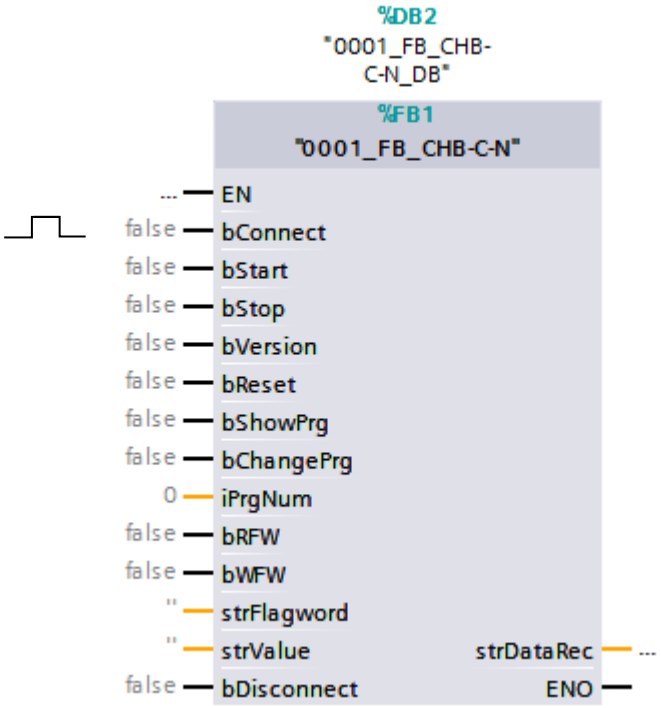
It is stored in a full functional example project. All necessary software elements are stored in the folders “0001_CHB-C-B_Control”.

To use the CHB function block in an existing TIA project, you can copy the folder “0001_CHB-C-N_Control” into your project via Drag and Drop.



The function block is equipped with the following interface signals:

Tag	Type	description
EN	Binary input	By TIA defined input. By default True! No need to apply any value.
bConnect	Binary input	Initialises the function block and opens the communication path
bStart	Binary input	Puts the Checkbox into Run mode
bStop	Binary input	Puts the Checkbox into Stop mode
bVersion	Binary input	Shows the actual firmware Version of the Checkbox
bReset	Binary input	Resets the command line and feedback string
bShowPrg	Binary input	Shows the selected checkprogram of the Checkbox
bChangePrg	Binary input	Changes the check program to the value defined by iPrgNum
iPrgNum	Integer input	Defines the program number to be written by bChnagePrg
bRFW	Binary input	Reads the value of the flagword defined by strFlagword
bWFW	Binary input	Writes a value defined by strValue to the flagword defined by strFlagword
strFlagword	String Input	Defines the Flagword to be addressed by bRFW or bWFW
strValue	String Input	Value to be set with the WFW command
bDisconnect	Binary input	Closes the communication channel
strDataRec	String output	Output of the result data as a string
ENO	Binary input	By TIA defined input. By default True! No need to apply any value.



Important Note!

The binary signals are triggered with the rising edge. The function block is **busy** as long as any binary input stays HIGH.

Data can only be transmitted, when the Checkbox is in STOP mode! Otherwise there will be an Error message at result output “strDataRec”.

Remark:

The online change of communication parameters, like IP address, will cause Errors in communication.

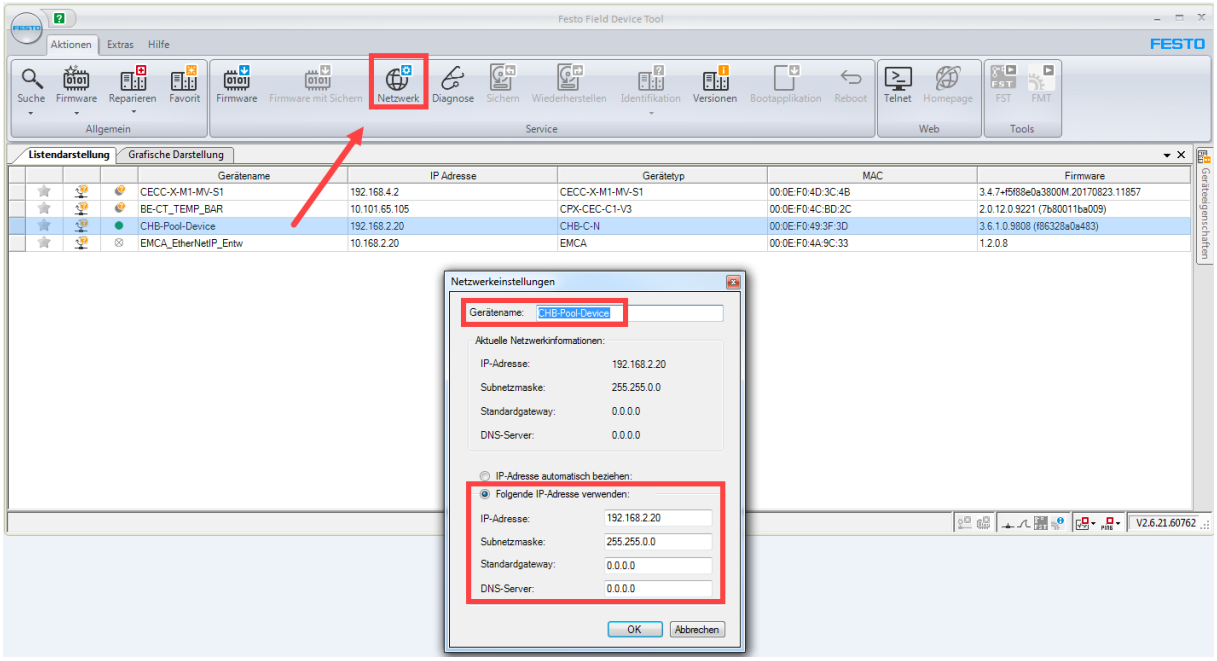
Remedy by download PLC program and reset PLC.

Requirements and Preparations

IP address range of PLC and Checkbox CHB-C-N must fit together.

The IP address of the Checkbox can be adjusted using the FestoFieldDeviceTool. This is available at www.festo.com/sp.

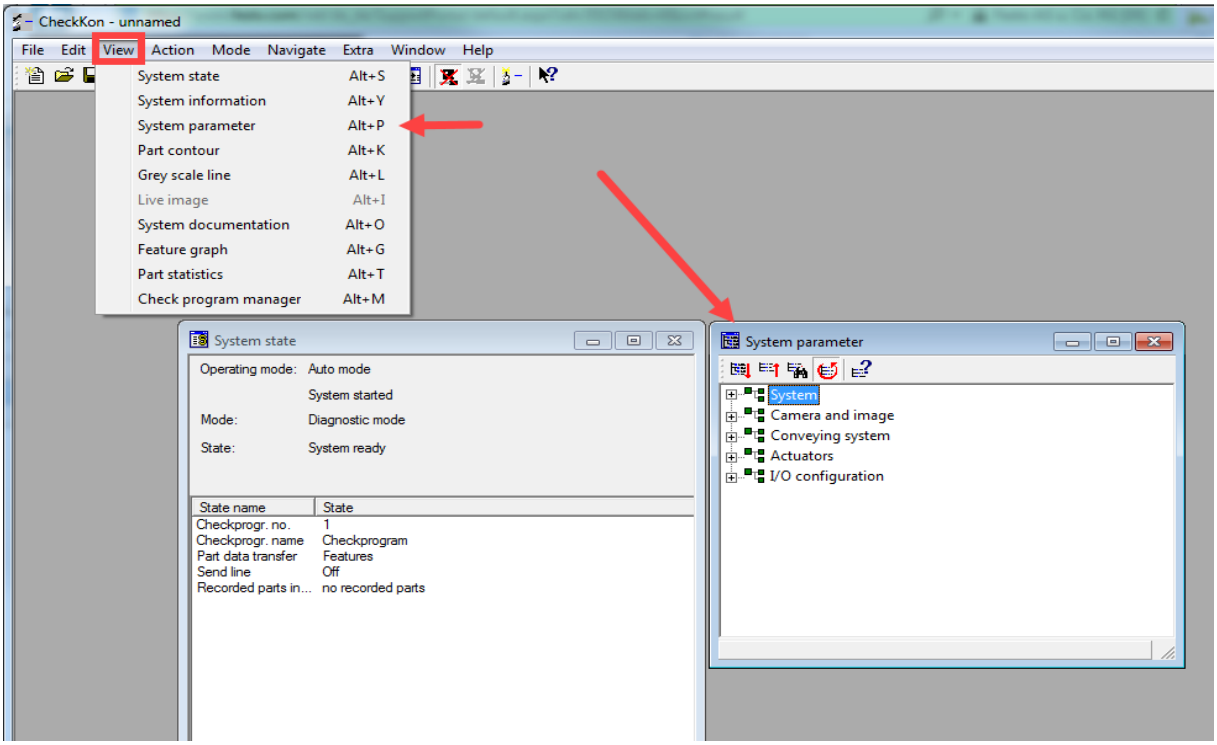
Example:



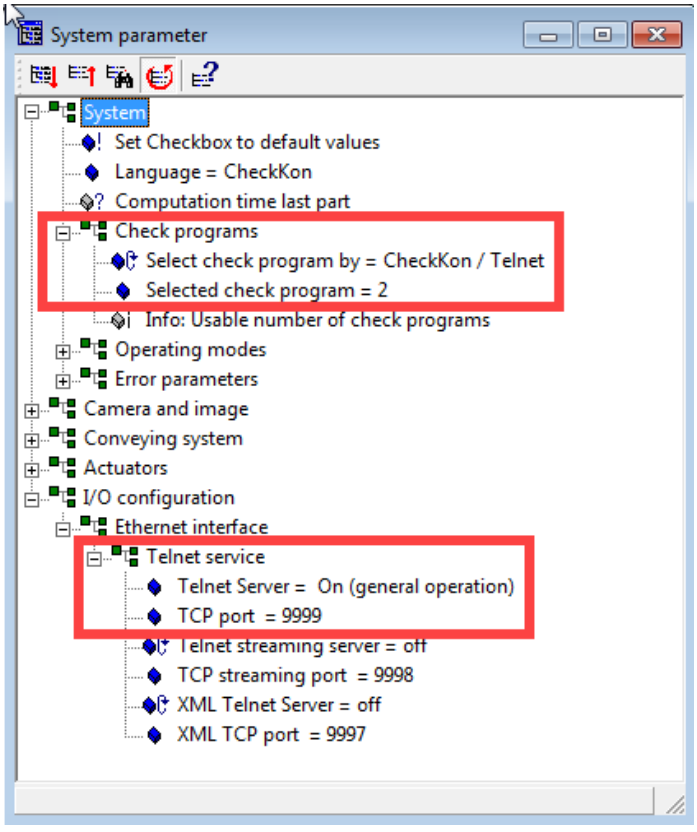
Search for the device and mark it. Then press on “Network”. Following you can change Checkbox settings in the editing window.

Required settings of system parameters of the Checkbox by software CheckKon. Use version 4.3 or higher. This is available at www.festo.com/sp.

Establish connection and access system parameter window:

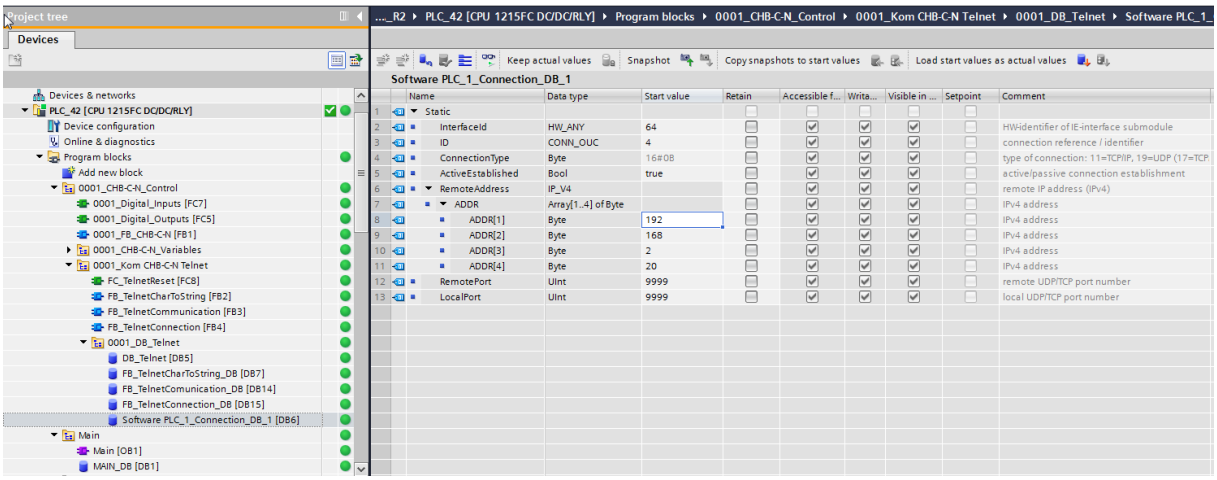


Two important settings are necessary for a successful communication. “Telnet server = on (general operation)” and “Select check program by = CheckKon/Telnet”.

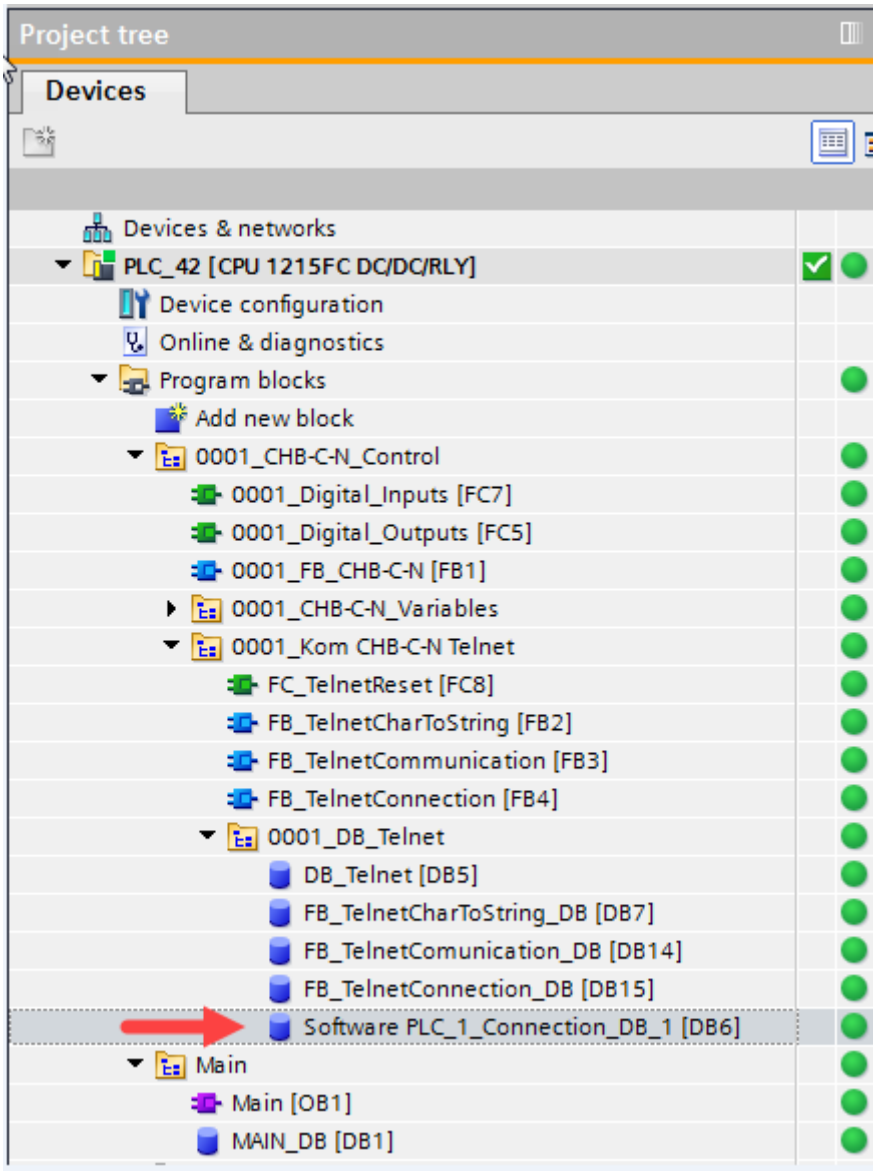


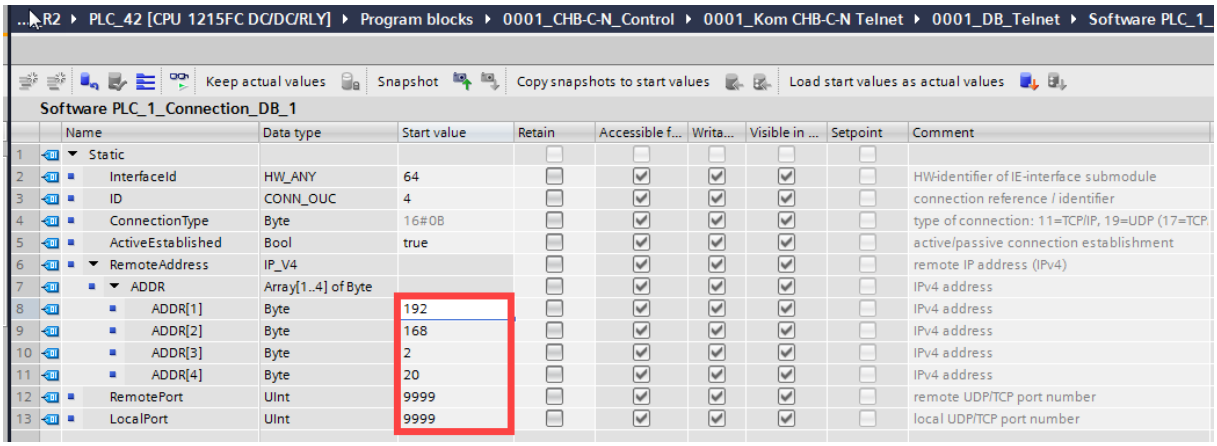
Siemens PLC

Edit the IP address for the Checkbox in the communication block:



Detailed view:





After all settings are finished the communication can be established.

Table of most common Checkbox flagwords

Flagword Basic Information

Current Check Program No.	250	only Read Access!

System

Check programs

Selected Check Program	5008	Range: 1 .. 256

Operating mode

Lock Teach Button	5011	not locked(0) / locked(1)

Counter settings

Counter Mode	5020	off(0) / on(1)
Counter Reached Position	5021	range: 1 .. 5000 mm

Camera and Image

Line Rate	5451	range: 1002..8539 (Hertz)
Encoder To Line Frequency Ratio	5452	range: 1 .. 64
Greylevel Threshold	5455	range: 0 .. 255
Upper Limit Viewing Area	5456	range: 8 .. 2055 (on default Resolution)
Lower Limit Viewing Area	5457	range: 8 .. 2055 (on default Resolution)

Advanced image parameters
Forced stop of analysis

Forced Stop of Analysis Mode	5600	off(0) / on(1)
Max. Part Length	5601	range: 10,0(100) ..1000,0 (10000) mm (real Value = digit /10)

Define viewing areas to be ignored

Ignore Center Area of Part	5620	off(0) / on(1)

Conveying System

Part feeding system

Activate Feeding System in Teach Mode	5802	off(0) / on(1)

Test part transport-system

Blow-Free Process	5830	off(0) / on(1)
Extension of Blow-Free Process	5831	range: 10 .. 10000 mm
Minimum Distance between Good Parts	5840	range: 0 .. 10000 mm
Minimum Distance; select orientations mode	5841	check only good parts in orientation_1(0) / check all good parts(1) / check only good parts in orientation 2 .. X(2) / check all good parts, optimized for turning station (3)

Actuators

Correlation between check results and actuator number

First Actuator Good Parts	5900	range: off(0) / 1 .. 4
Second Actuator Good Parts	5901	range: off(0) / 1 .. 4
Actuator Jamming Area Full	5902	range: 1 .. 4
Actuator Counter Reached	5903	range: 1 .. 4
Good Part is wrongly orientated as from orientation number = X	5904	range: 1 .. 8
Actuator Wrong Orientation	5905	range: 1 .. 4
Actuator Bad Part	5906	range: 1 .. 4
Actuator Teach Parts	5907	range: 1 .. 4
Actuator Parts by Forced Stop of Analysis	5909	range: 1 .. 4
First Actuator Blow-Free Process	5910	range: 1 .. 4
Second Actuator Blow-Free Process	5911	range: 1 .. 4
Actuator for part is Inside of Minimum Distance	5912	range: 1 .. 4
Length-Factor for activating time referring to part length	5950	range: 0,00 .. 500 (real Value = digit /100)

For more flagword numbers please contact Festo service.