

TECH NOTE :: ClipX and PMX: Connection to several PLC platforms

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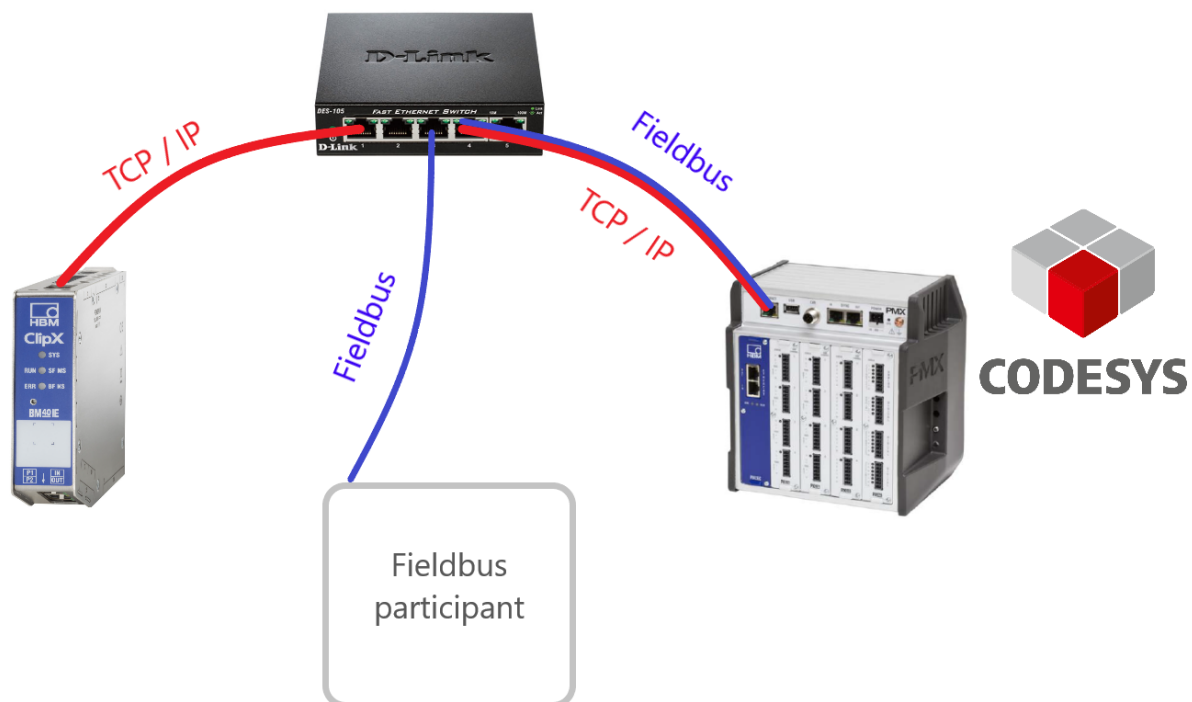
Status: HBM: Public

Short description

This is an instruction to establish a communication of participants without fieldbus with a PLC. Therefore, the possibility of transmitting non-real-time data via field bus is used. These data do not interfere the fieldbus data.

In this example, a communication of an PMX (PMX is used as PLC) with ClipX via a socket connection and simultaneously transmitting readings is established. Therefore, TCP/IP is used in parallel to the fieldbus connection without mutual interference. To use PMX as PLC, a CODESYS application for PMX is used.

This method can be used for each ethernet based fieldbus (Profinet, Ethernet/IP, Modbus/IP...).



Requirements


To carry out this example the following material is required:


- ClipX amplifier
- PLC (here PMX with CODESYS)
- CODESYS Software
- CODESYS 'Object Dictionary' project archive

Carry out

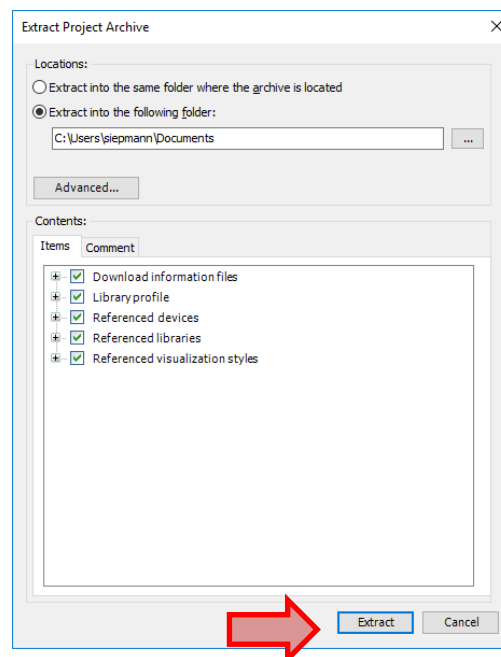
CODESYS

At first the CODESYS project archive is opened by double clicking it:



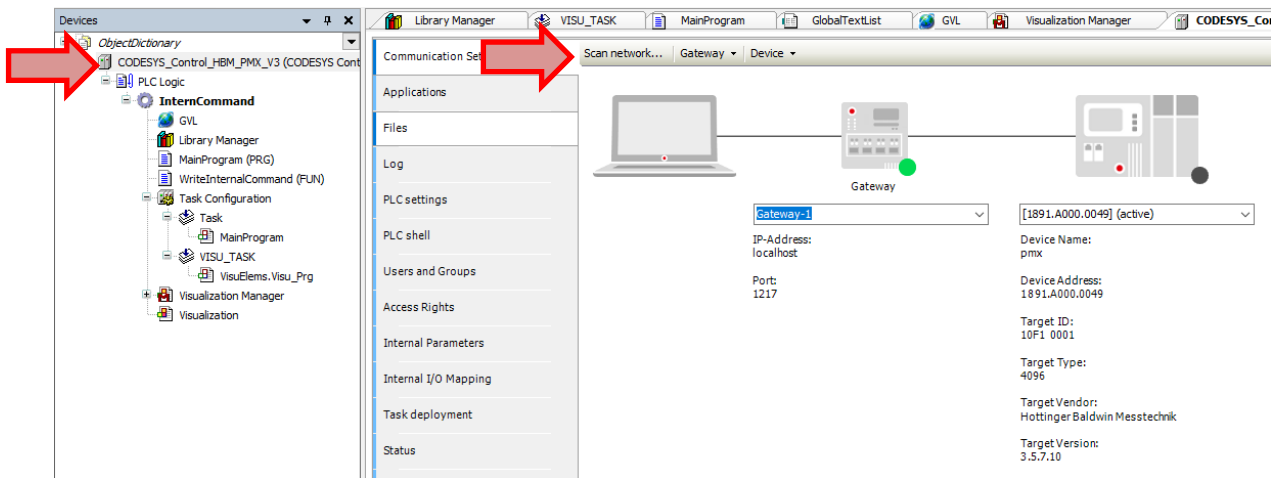
Name	Änderungsdatum	Typ	Größe
 ObjectDictionary.projectarchive	10.04.2019 10:30	CODESYS project ...	18.045 KB

In the following dialog confirm by clicking 'Extract'.

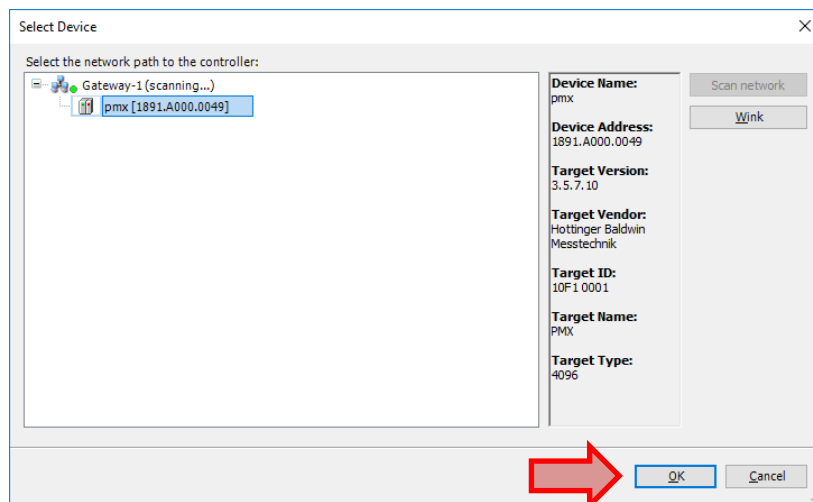


Now the connection to PMX will be established:

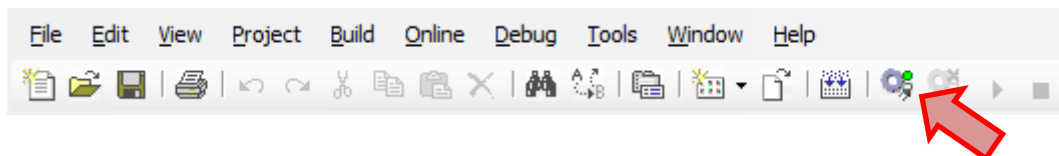
- Double-click 'CODESYS_Control_HBM_PMX_V3...' and then choose 'Scan Network...'



- Select the PMX and confirm with 'OK'



Now the PMX is connected and the application can be uploaded. Therefore click the icon in the menu bar.



By pressing 'F5' the application is started.

The communication with ClipX is implemented by the following three steps:

1. Create socket and establish TCP connection to ClipX:

```
//Create Socket
socket := SysSockCreate(SOCKET_AF_INET, SOCKET_STREAM, SOCKET_IPPROTO_IP,ADR(Result));
IF socket =RTS_INVALID_Handle THEN
WriteInternalCommand:='could not create socket';
RETURN;
END_IF
//Open TCP Connection to Port 55000 and IPAddress
SysSockInetAddr(szIPAddress:=sIPAddress , pInAddr:=ADR(inaddress) );
sockaddr.sin_family := SOCKET_AF_INET;
sockaddr.sin_port := SysSockHtons(55000);
sockaddr.sin_addr := inaddress;
IF Errors.ERR_OK<>SysSockConnect(socket,ADR(sockaddr),SIZEOF(sockaddr)) THEN
WriteInternalCommand:='Could not connect';
RETURN;
END_IF
```

2. Send command to ClipX and receive response:

```
//Add Linefeed to Command if needed
IF NOT(Right(szSend,Len(szSend)-4)=sLineFeed)THEN
szSend:=Concat(szSend,sLineFeed);
END_IF

//Send Command to ClipX
IF SysSockSend(socket, ADR(szSend), SIZEOF(szSend), 0,ADR(Result))=0 THEN
WriteInternalCommand:='Could not send command';
RETURN;
END_IF
//Receive response from ClipX
IF 0=SysSockRecv(socket,ADR(sReceive),SIZEOF(sReceive),0,ADR(Result)) THEN
WriteInternalCommand:='Did not get response';
END_IF
```

3. Shutdown connection

```
//Shutdown socket
SysSockShutdown(socket,0);
SysSockClose(socket);
socket:=RTS_INVALID_Handle;
WriteInternalCommand:=Left(sReceive,Find(sReceive,sLineFeed));
```

Examples

The application has a visualization that can be displayed by clicking the CODESYS icon in the web interface of PMX.

IP:

Index	Subindex	Value
<input type="text" value="0x40a2"/>	<input type="text" value="30"/>	<input type="text" value="4"/>

Response:

In the upper box the IP address of ClipX must be entered. The boxes 'Index' and 'Subindex' are filled with the values of the ClipX OD. For example, we change the filter type to butterworth (corresponds to value 2).

110	measval/	filterType	0x4401	1	UINT8	RWS	Filter type, 3=Bes, 2=But
111	measval/	filterCutOffF	0x4401	2	FLOAT	RWS	Filter cut-off frequency in Hz
112	measval/	testValueGr	0x440A	1	FLOAT	RWS	Test value (process value)
113	measval/	testValueGr	0x440A	2	UINT8	RW	Test value (process value) activated
114	measval/	errorValue	0x440B	1	FLOAT	RWS	Error value

IP:

Index	Subindex	Value
<input type="text" value="0x4401"/>	<input type="text" value="1"/>	<input type="text" value="2"/>

Response:

When entering an invalid value or accessing to a read-only object, only the current value is read.

Example: Write the device string. (Index = 0x4280, Subindex = 2)

IP:

Index	Subindex	Value
<input type="text" value="0x4280"/>	<input type="text" value="2"/>	<input type="text" value="50"/>

Response:

Disclaimer

These examples are for illustrative purposes only. They cannot be used as the basis for any warranty or liability claims.