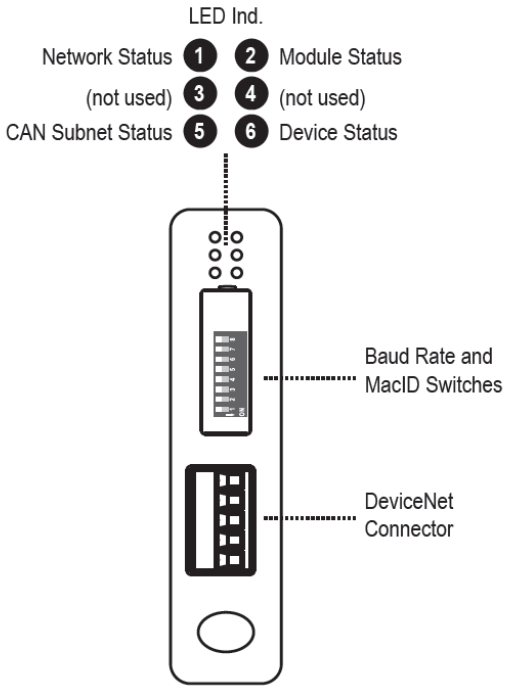
Instructions

How to set up a WEBER C30S with DeviceNet fieldbus

1 Hardware setup

The C30S Fieldbus module must be configured with the DIL switches in the front side.



The meaning of the switches is defined as the following:

Baud Rate	Sw. 1	Sw. 2
125 kbps	OFF	OFF
250 kbps	OFF	ON
500 kbps	ON	OFF
(reserved)	ON	ON

MacID	Sw. 3	Sw. 4	Sw. 5	Sw. 6	Sw. 7	Sw. 8
0	OFF	OFF	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	OFF	ON	OFF
...	...	...	...	...	...	...
63	ON	ON	ON	ON	ON	ON

Please set the switches according to your needs.

2 Connection

Make sure that the C30S is connected to the DeviceNet and the unit is switched on.

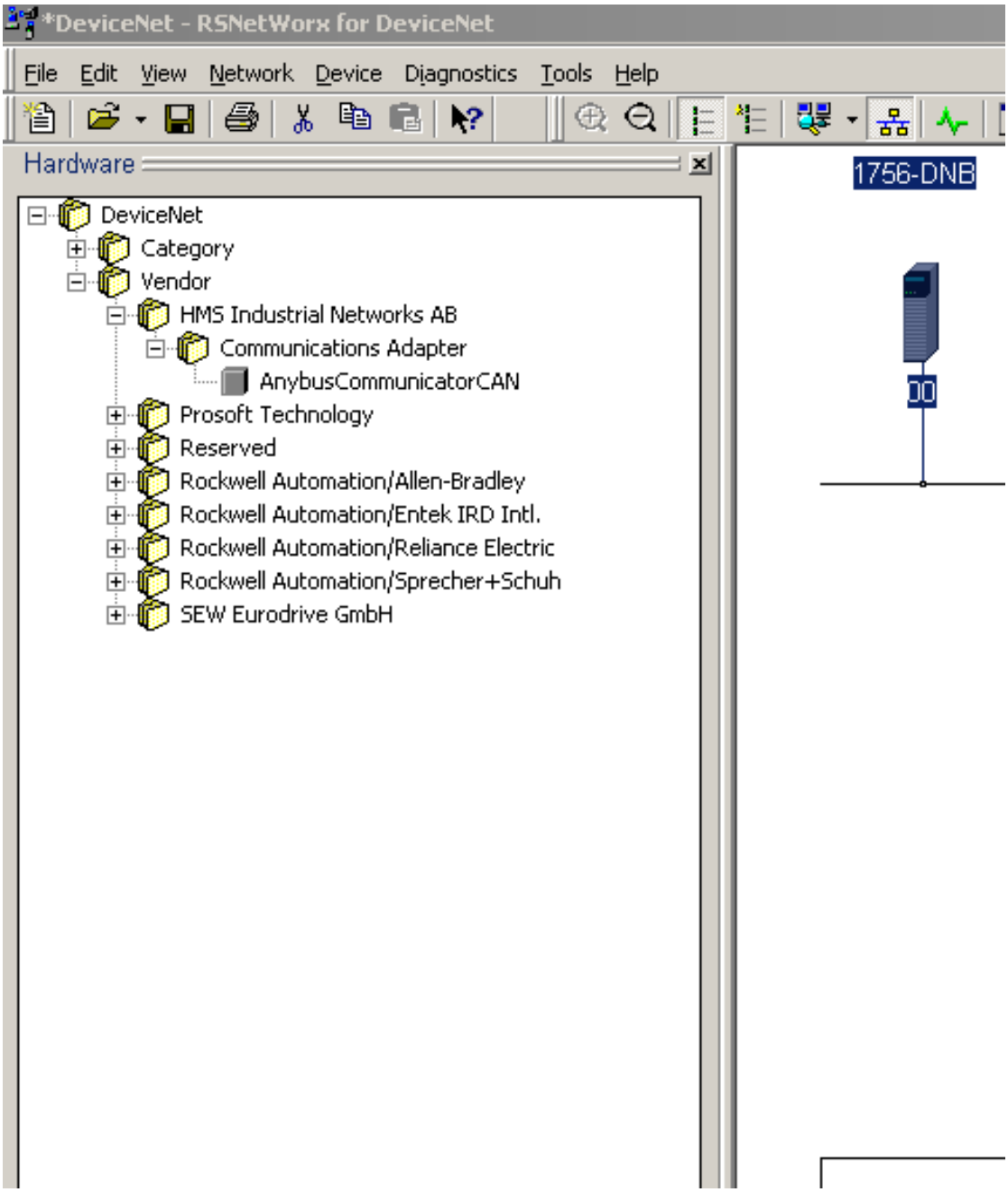
3 Import of the EDS File

Use the Rockwell Software EDS Hardware installation tool to register the EDS file to the Database. Select the file "0(05A000C00510100.EDS)" and "Add" it.

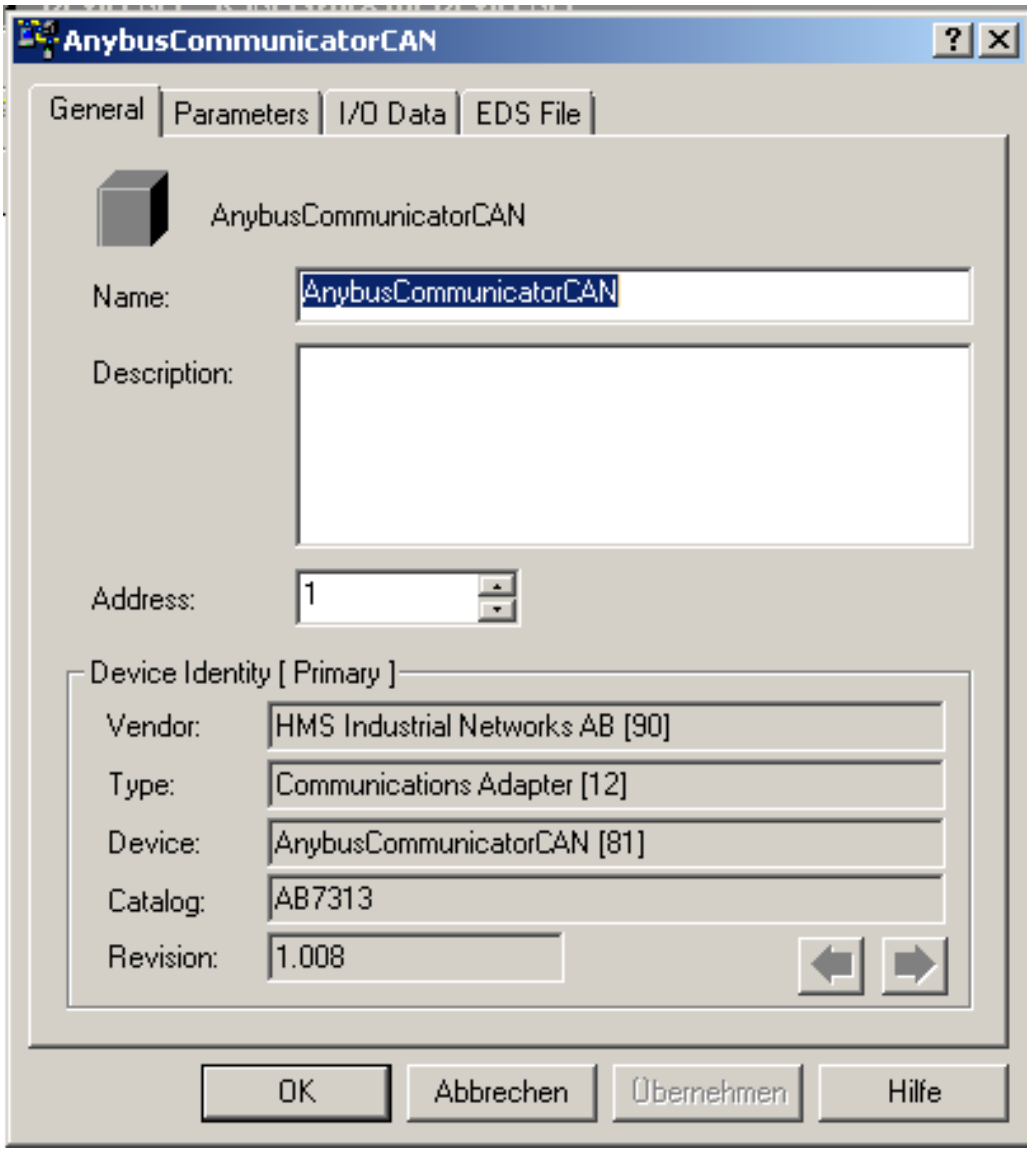
4 Configure a C30S slave

Start the "RSNetWorx" tool.

After you have configured the DeviceNet scanner (section 1 above), you can insert the "AnybusCommunicatorCAN", which is listed under "Vendor HMS Industrial Networks AB:"

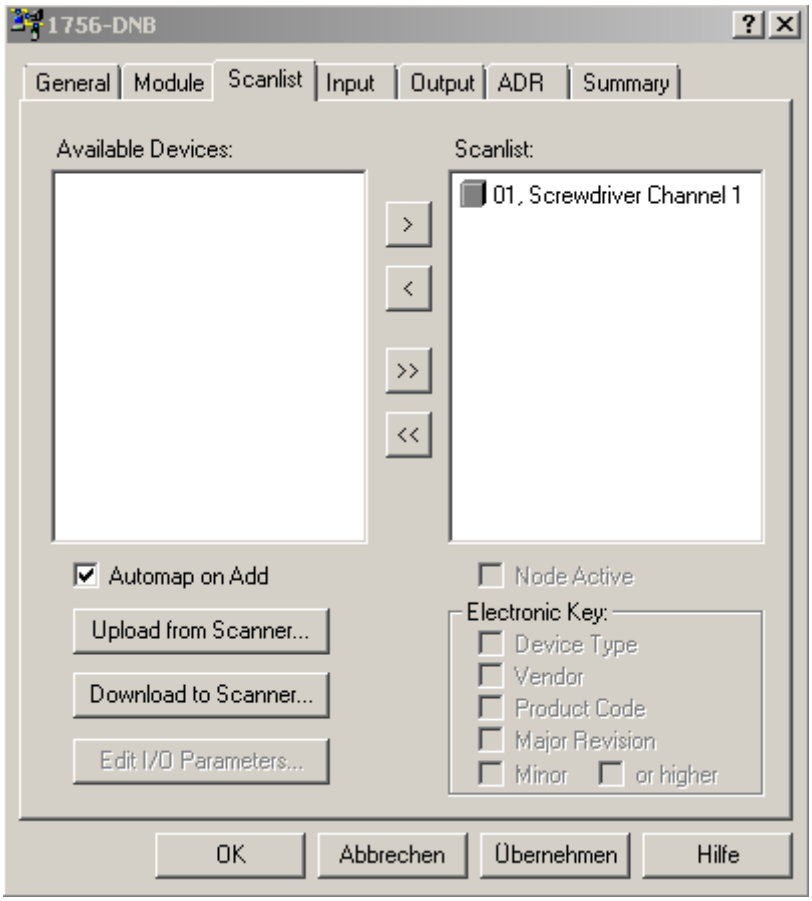


Open the Properties of the AnybusCommunicatorCAN and select the Node "`Address`" of the C30S, which is adjusted with the DIL switches on the module front. You can also define the name of the slave station ("`Screwdriver Channel1`") here.

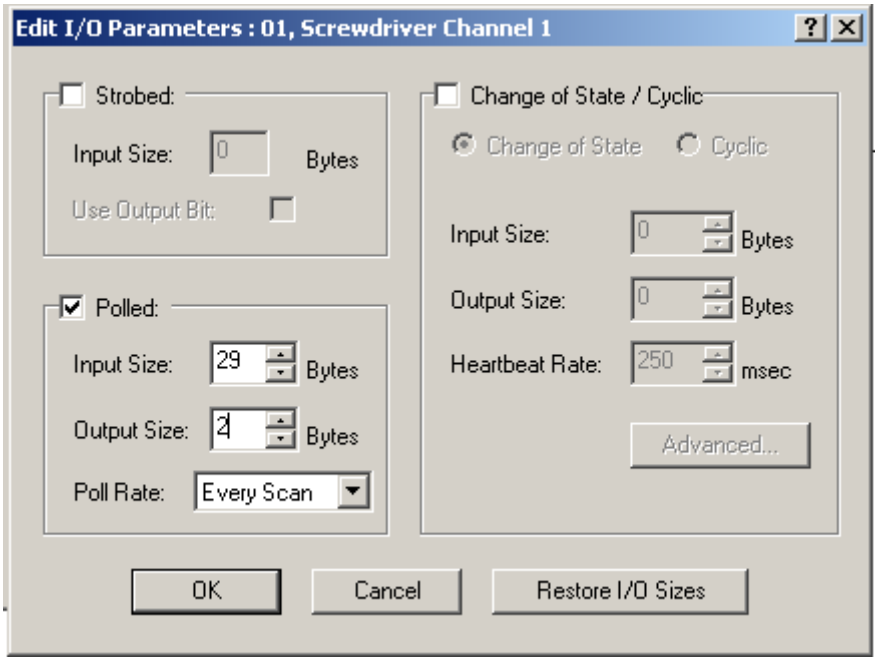


Open the properties of the DeviceNet scanner and select the tab "`Scanlist`".

Now move the "`Screwdriver Channel1`" item from the "`Available Devices`" into the "`Scanlist`" on the right side.



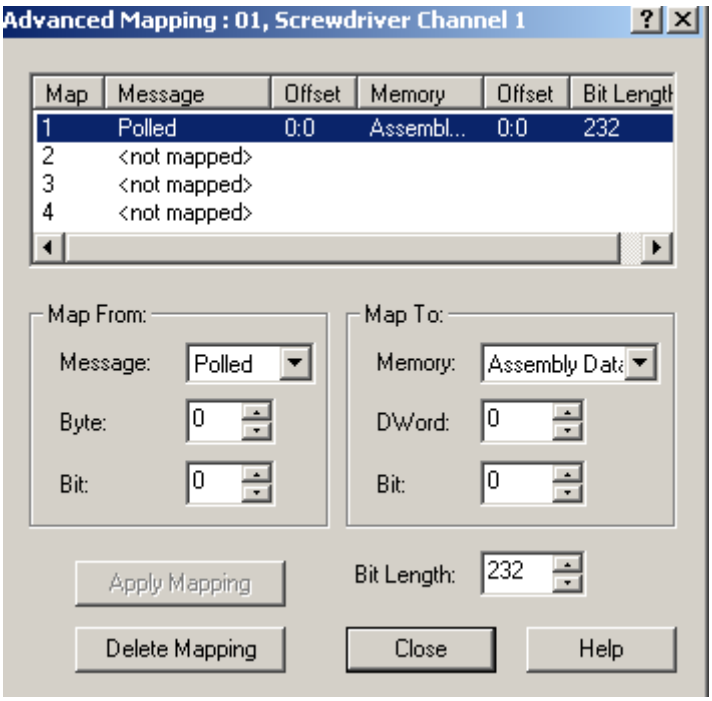
With a double click on the "`Screwdriver Channel1`", the I/O Parameters of the C30S can be edited. Please adjust the settings according the following screenshot:

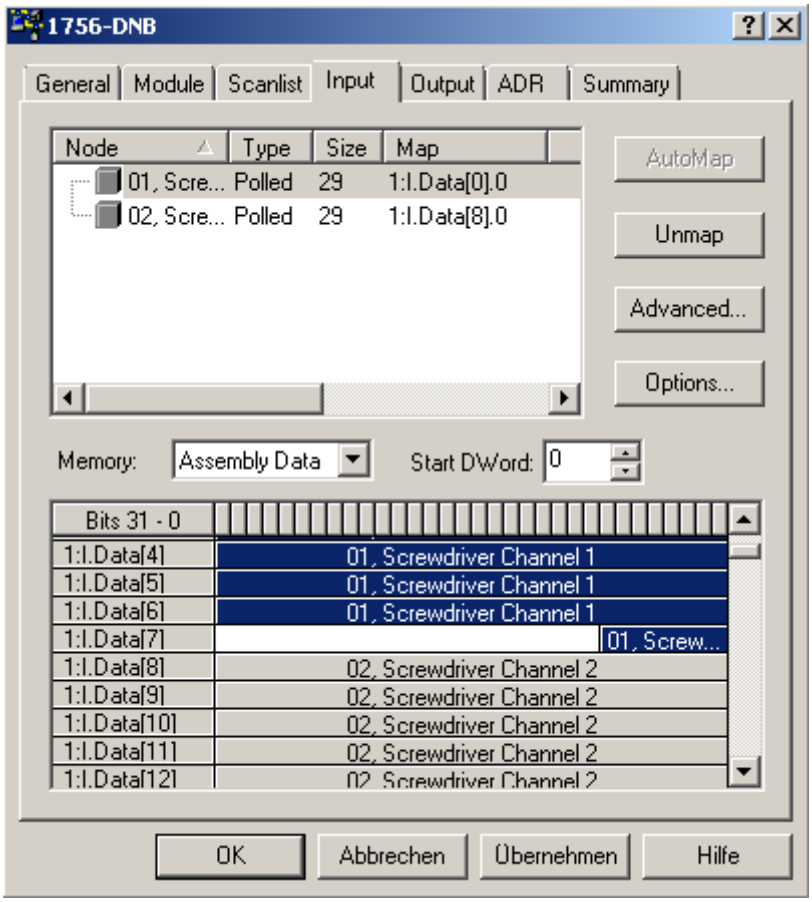


Press OK

Now use the tab “Input” and select the node of the “Screwdriver Channel1”. Press the “Advanced...” button to modify the data layout for the C30S.

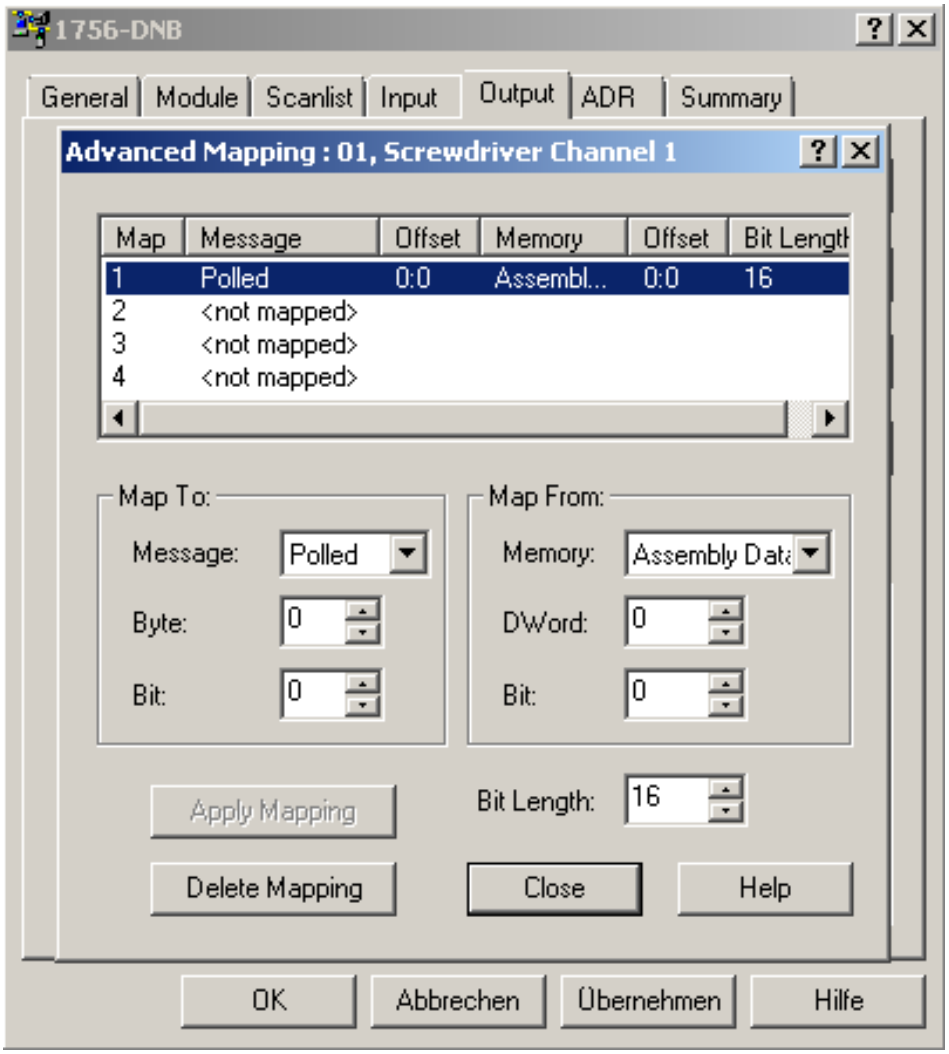
Please make sure that the beginning of the C30S data is starting at the beginning (Bit 0) of a DINT. If there are other slaves bytes before the C30S data, then it may be possible that the C30S data will not begin at Bit = 0. In this case, use the next DWord position and set Bit = 0. Then press the “Apply Mapping” button.

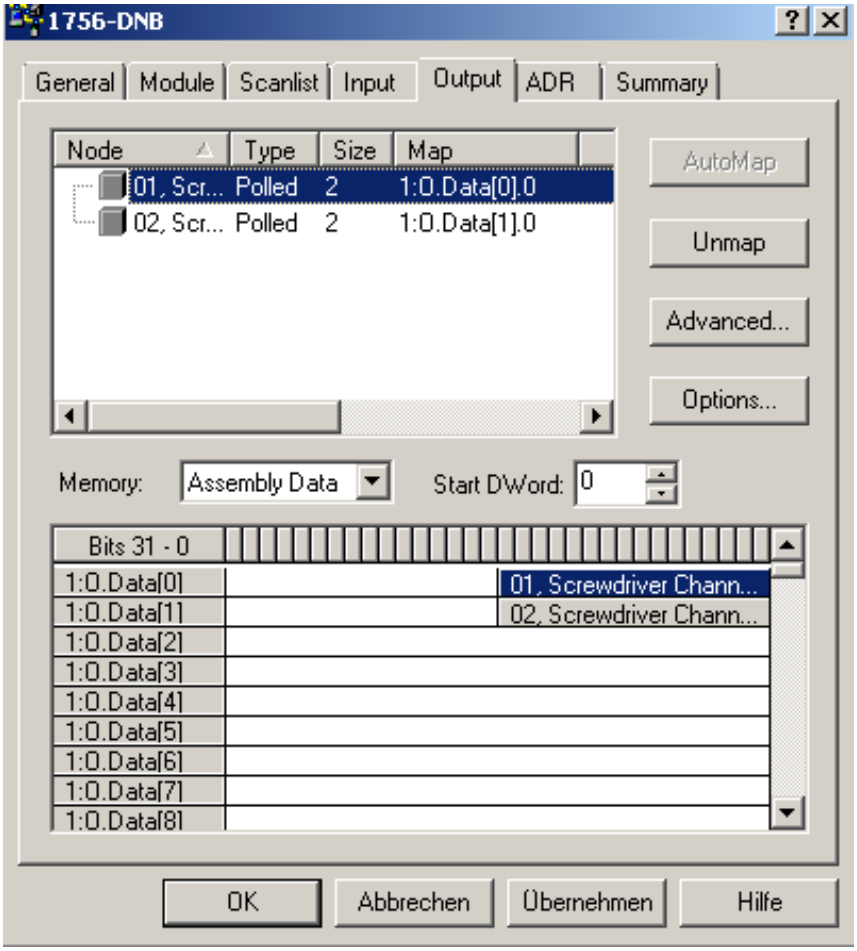




Now use the “Output” tab and select the node “`Screwdriver Channel1`”. Press the “`Advanced...`” button to modify the data layout for the C30S.

Please make sure that the beginning of the C30S data is starting at the beginning (Bit 0) of a DINT. If there are other slave’s bytes before the C30S data, then it may be possible that the C30S data will not begin at Bit = 0. In this case, use the next DWord position and set Bit = 0. Then press the “`Apply Mapping`” button.





Close the Dialog with Ok.

Download the configuration.

Don't forget to set the "`Command Register Run: Run`" to enable the DeviceNet scanner

This configuration would allow the possibility to check the communication to the C30S slave device. After downloading to, and starting the PLC, you should be able to see in the "`Controller Tags`" of the slave device the input data. This data is organized in DWORDs, so the values can not be interpreted directly.

Local:4:I.Data	{...}	{...}	Decimal	DINT[124]
Local:4:I.Data[0]	393751		Decimal	DINT
Local:4:I.Data[1]	-2140291839		Decimal	DINT
Local:4:I.Data[2]	2112512		Decimal	DINT
Local:4:I.Data[3]	150717440		Decimal	DINT
Local:4:I.Data[4]	0		Decimal	DINT
Local:4:I.Data[5]	471482112		Decimal	DINT
Local:4:I.Data[6]	102		Decimal	DINT
Local:4:I.Data[7]	151		Decimal	DINT
Local:4:I.Data[8]	0		Decimal	DINT
Local:4:I.Data[9]	0		Decimal	DINT
Local:4:I.Data[10]	0		Decimal	DINT
Local:4:I.Data[11]	0		Decimal	DINT
Local:4:I.Data[12]	0		Decimal	DINT
Local:4:I.Data[13]	0		Decimal	DINT
Local:4:I.Data[14]	0		Decimal	DINT
Local:4:I.Data[15]	0		Decimal	DINT

5 Use the WEBER supplied UDT and AOI

At the "Controller Organizer" under "Data Types", right click on "User Defined" and choose "Import data Type...". Select the File "UDT_Weber_C30S.L5X" and import it.

This should give you 3 new data types.

UDT_C30S_To_PLC: Structure of the input data from the C30S
UDT_PLC_To_C30S: Structure of the output data to the C30S
UDT_Weber_C30S: Complete structure encapsulating the above two UDT's.

Now we need to create an instance of the UDT_Weber_C30S data type. Name this instance according your wishes. It will keep the data which is there to communicate to the C30S.

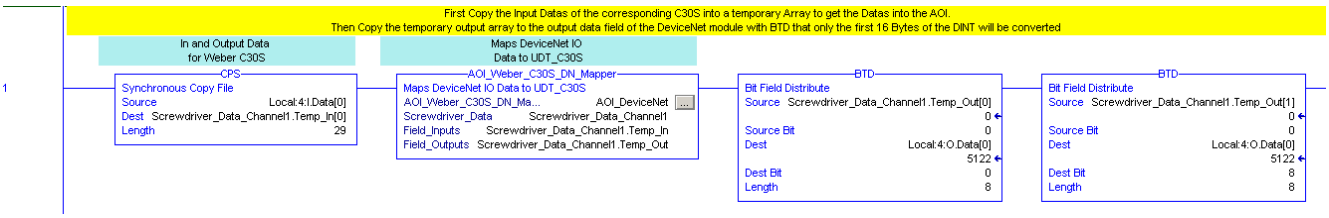
At the "Controller Organizer" right click on "Add On Instructions" and choose "Import Add on Instruction...". Select the File "AOI_Weber_C30S_DeviceNet_Data_Mapper.L5X" and import it.

You can keep the given name of the function block.

In your program we need to add a rung where we copy the DeviceNet input data to the "UDTinstanceName.Temp_In" data array. Use as source the start of the input data defined in the DeviceNet scanner. The length needs to be 29 bytes.

Then we need to invoke the AOI to map the data on the "UDT_Weber_C30S" structure.
Screwdriver Data: Put the instance of the UDT_Weber_C30S struct
Field_Input: DNet_C30S_Temp_In
Field_Output: DNet_C30S_Temp_Out

Finally, we need to copy the "UDTinstanceName.Temp_Out" data to the DeviceNet output data. Use as designation the start of the output data defined in the DeviceNet scanner. The length is 2 bytes.



This rung has to be invoked in your program cyclically.

Now you can use the C30S tags in your PLC program.

Screwdriver_Data_Channel1	{...}	{...}		UDT_Weber_C30S	In and Output Data for Weber I
Screwdriver_Data_Channel1.Out	{...}	{...}		UDT_PLC_To_C30S	In and Output Data for Weber I
Screwdriver_Data_Channel1.Out.Automatic	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.Out.Start	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.Out.AckFault	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.Out.DS1	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.Out.DS2	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.Out.ExtDigSig	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.Out.Res1	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.Out.Res2	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.Out.Prog	0		Decimal	SINT	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN	{...}	{...}		UDT_C30S_To_PLC	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.NoFault	1		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.ReadyToSt...	1		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.OK	1		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.NOK	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.DepthRea...	1		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.Res1	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.Res2	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.Res3	0		Decimal	BOOL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.ProgResult	2		Decimal	SINT	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.StrategyRe...	6		Decimal	SINT	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.CodeResult	1		Decimal	INT	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.TorqueResult	-0.03967285		Float	REAL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.PreTorque...	0.010986328		Float	REAL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.AngleResult	-2006.75		Float	REAL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.DepthResult	0.0		Float	REAL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.DriveTime	0.59999585		Float	REAL	In and Output Data for Weber I
Screwdriver_Data_Channel1.IN.CycleNumber	150		Decimal	DINT	In and Output Data for Weber I

6 Error detection

For simple diagnosis you can look at the “`StatusRegister`” of the DeviceNet bus system. There are some bits which show the bus status.

With the function block “`GetSystemValue`”, the status of the Ethernet IP Bus can be evaluated. For “`InstanceName`” you must set in the bus module of the C30S. At “`AttributeName`” you need to use “`FaultCode`”. In “`Dest`” the actual status is shown. Zero indicates that the C30S is properly connected to the bus.