C2000 DeviceNet Slave in Speed Mode

Devices and tools:

Inverter: VFD007C23A, Firmware V9.020 (12274)

C2000 Optional Card: EMC-PG01U CMC-DN01(V1.01)
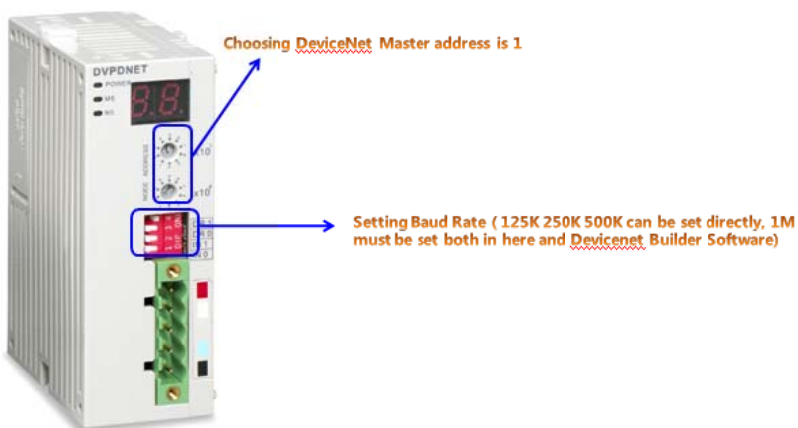
PM motor: ECMA-C30602ES

PLC: DVP28SV11T+DVPDNET

Connector: TAP-CN03

Operation Steps:

1. Setting necessary Parameters for C2000+PM motor with PG01U. (Please kindly refer to the announcements related to C2000+PM with PG01U).

2. Wiring 28SV and C2000 for one DeviceNet network.

3. Setting DVPDNET Master address & Network Speed.

The DeviceNet Master address is 1 and speed is 1M. Besides, if we set 1M speed, it is not enough to set DR switch but also need to set DeviceNet Builder. Please kindly refer to the follows:

www.importsnab24.ru
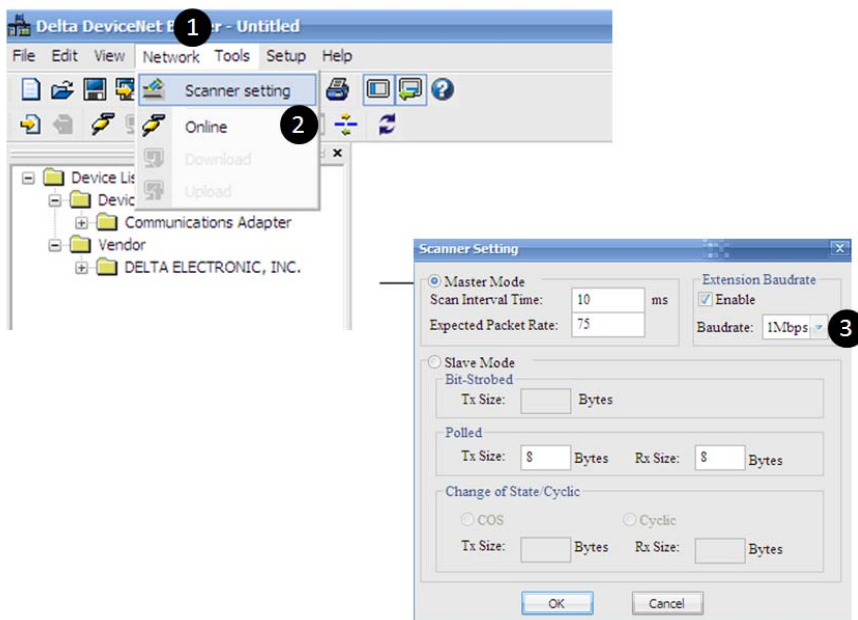
1) Open DeviceNet Builder and click the Network.

2) Click the Scanner Setting.

3) Click "Enable" and set 1M baudrate. And then scanning the network devices, configure them, download them.

4. Setting DeviceNet Slave Parameters in C2000.

Pr. no	Definition	Setting value
00-20	Source of Master Frequency Command	8(for communication card)
00-21	Source of the Operation Command	5(for communication card)
09-30	Communication Decoding Method	0(20XXH)[A]
09-70	Address of communication card	2
09-71	Setting of DeviceNet speed	7(for 1M bps)[B]
09-72	DevicNet speed type choice	1(for Delta self-definition) [C]

A. 09-30 must be 0 for 20XXH since DeviceNet only can support 20XXH not 60XXH.

B. Only Delta Self-Definition speed type can support 1M in DeviceNet. So if 09-71 is set to 1M, the 09-72 must be set 1 namely Delta Self Definition.

C. The 09-72 can be set 0 or 1 for DeviceNet Standard Speed Type or Delta self-definition speed type. Please kindly refer to the tables as follow:

| 09-72	09-71	BaudRate in DeviceNet
	0	125K
0 for DeviceNet Standard Speed Type	1	250K
	2	500K
	0	10K
	1	20K
	2	50K
	3	125K
1 for Delta Self-definition Speed Type	4	250K
	5	500K
	6	800K
	7	1M

5. Repower DNET-SL and C2000.

6. Open the DeviceNet Builder for configuring the DeviceNet Indexes mapping.
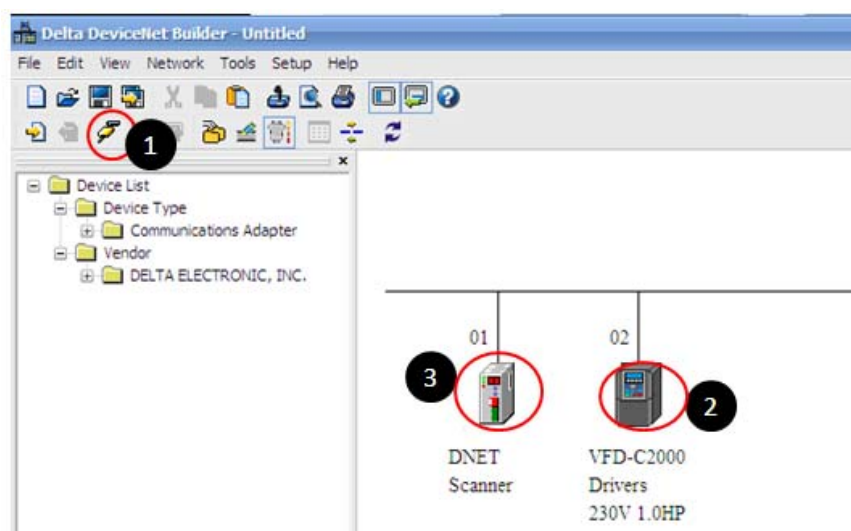
1) Click the scanning button for scanning the network notes. The result is one DNET master and one C2000 slave.

2) Click the C2000, and go to Parameter Edit. Then we can take the actions as follows:

www.importsnab24.ru
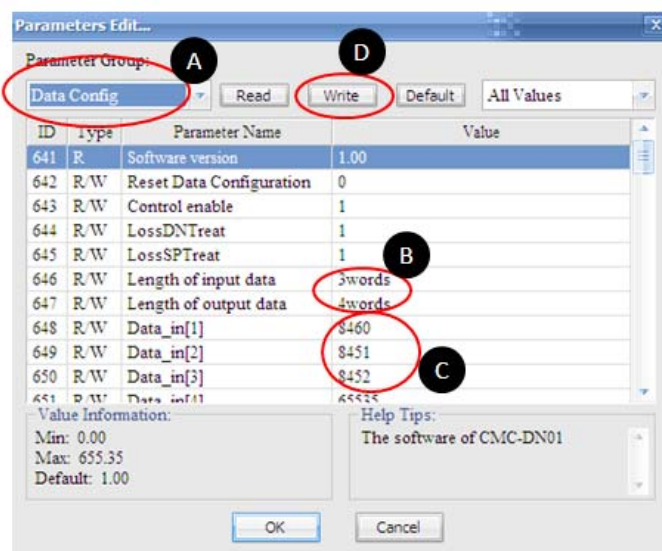
A. Choose the Data Config..

B. Set the length of input data and output data. The input data is read C2000 parameters and output data is to write C2000 parameters. The data number must abide by the length.

C. Set the specific input data and output data. All the data only can be set by decimal format. In this case we set:

Input Data			Output Data		
Decimal	HEX	Definition	Decimal	HEX	Definition
8460	210CH	Motor Speed	8192	2000H	Ope. Com.
8451	2103H	Output Fre.	8193	2001H	Fre. Com.
8452	2104H	Output Cur.	268	01-0CH	Acc. Time
			269	01-0DH	Dec. Time

D. Write the data.

3) Click the DVPDNET Master for enabling the mapping and download the configuration of DeviceNet to DVPDNET-SL.

Please kindly refer to the DeviceNet Builder Samples.

7. Repower DNET-SL and C2000 again.

8. Making the PLC program based on the DeviceNet Builder Configuration. Please kindly refer to the DeviceNet Samples PLC program.

9. Running the program.

Attentions:

1. Why must we consider 20XX setting namely 09-30=0 for DeviceNet?

20XX and 60XX are all considerate for CanOpen or DeviceNet since the PDO in CanOpen or the address in DeviceNet are all based on the modbus address. For DeviceNet, there is no 60XX mapping setting and only 20XX or common modbus address like 01-12 01-13 can be mapped. Hence, we must ensure 09-30=0 namely

20XX decoding method for DeviceNet.

2. **Is every firmware version of DeviceNet Builder OK for C2000 DeviceNet setting?**

    Please use V1.07 firmware of DeviceNet Builder for C2000 DeviceNet setting at least. If you use the old
    firmware the mapping will be problem for C2000 DeviceNet.

3. **What is the biggest difference in the control between CanOpen with DeviceNet?**

    The DeviceNet doesn't have PDO setting like CanOpen, and the control for C2000 all is based on the modbus
    address. Hence we can control the modbus address directly by DeviceNet, but we must input the decimal of
    address not HEX. So this is one you should note.

4. **Is DeviceNet Baudrate of Delta up to 1M?**

    Before, the DeviceNet Baudrate maximum is only 500K, now it can be up to 1M, but this is only for
    Delta-definition type. Please kindly refer to the Step 4 Number C, there is one Baudrate table. This table is
    correct and please kindly refer to this table if the manual description is not the same.

    Besides, step 3 introduces how to set 1M for DVPDNET-SL, and it is not only by DR switch but also DeviceNet
    Builder.