

**YOU NEED**

- PD-1021
- Power supply with nominal supply voltage of +12 V or +24 V DC (9... 28 V DC)
- RS485 interface converter (e.g. USB-2-485)
- PC with TMCL-IDE program (available from [www.trinamic.com](http://www.trinamic.com))
- Cables for interface and power

**STARTING UP**

1. Connect the RS485 interface using pin 1, pin 3, and pin 4 of the connector for power and RS485 communication.

Use an interface converter (e.g. USB-2-485) between module and PC and install it.

2. Turn power ON. The green LED for power starts flashing slowly and the motor is powered but in standstill now.

*If this does not occur, turn power OFF and check your connections and power supply!*

3. Start the TMCM-IDE program (see next page how to configure the connection and to use the IDE)
4. Type in the open window:

```
ROL o, 10000 //Rotate motor 0 with speed 10000
WAIT TICKS, o, 500
MST o
ROR o, 10000 //Rotate motor 0 with speed 10000
WAIT TICKS, o, 500
MST o
```

5. Click the *Assemble* icon. Thereafter click the *Download* icon to download the code to the module. Click the *Run* icon. The program will now be executed.

6. Click the *Stop* icon and start TMCL™ *Direct Mode* to issue the following commands:

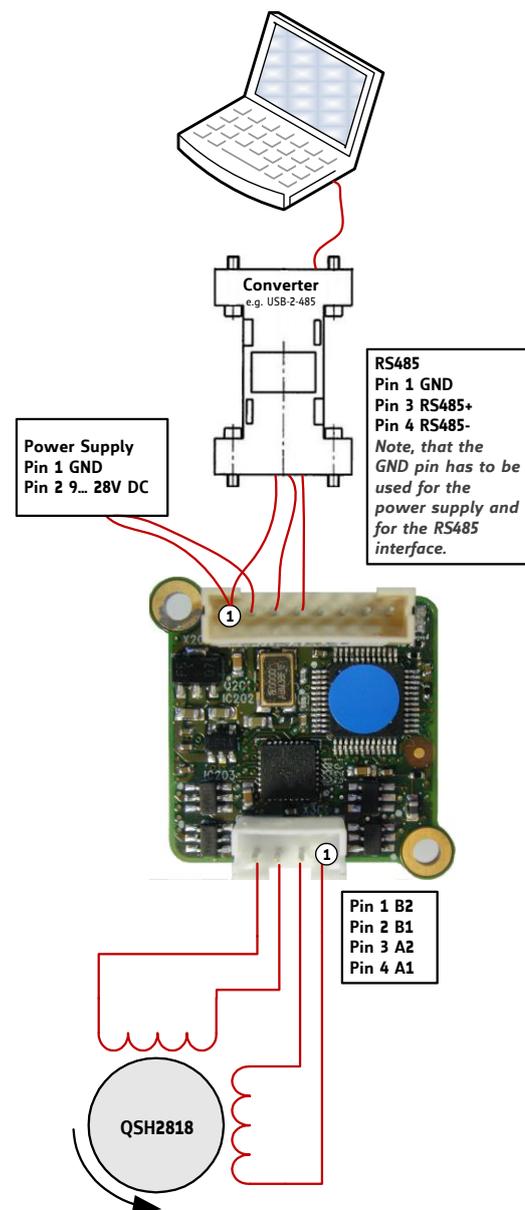
```
ROR rotate right, motor 0, value 10000 -> click Execute
The motor is rotating now.
MST motor stop, motor 0 -> click Execute
The motor stops now.
```

**FIRST STEPS ARE MADE.**

Please refer to the PD-1021 Hardware and Firmware Manuals, too.

**PRECAUTIONS**

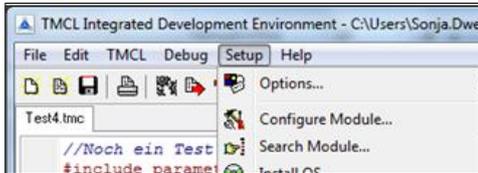
- Do not mix up connections or short-circuit pins.
- Avoid bounding I/O wires with motor power wires.
- Do not exceed the maximum power supply of +28 V DC!
- Do not connect or disconnect the motor while powered!
- START WITH POWER SUPPLY OFF!



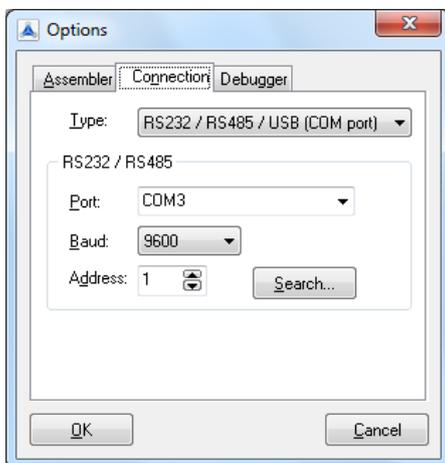
## TMCL-IDE

The TMCL-IDE is available on [www.trinamic.com](http://www.trinamic.com).

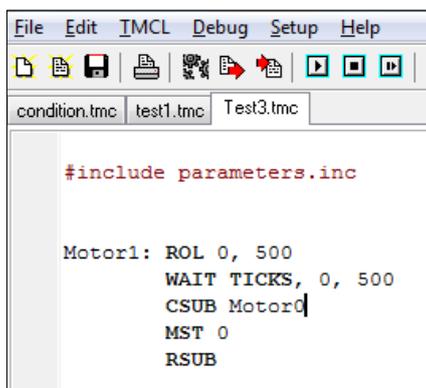
1. Make sure the COM port you intend to use is not blocked by another program.
2. Open TMCL-IDE by clicking *TMCL.exe*.
3. Choose *Setup* and *Options* and thereafter the *Connection* tab.



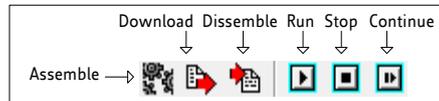
4. Choose *COM port* and *Type*. Click *OK*.



5. Enter the program code and save it with *File/Save*.  
Note, that TMCL programs run standalone on the module, too.



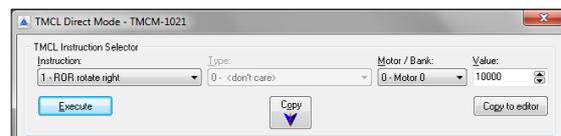
6. Click *Assemble* first, then *Download* and *Run* to start the program.



7. Stop all running programs by clicking *Stop* and start *Direct Mode* by clicking the appropriate icon.



8. The PD-1021 is automatically detected, if the communication is established.
9. Issue a command by choosing *Instruction*, *Type*, *Motor*, and *Value* and click *Execute* to send it to the module.



### TROUBLESHOOTING

#### IF COMMUNICATION IS NOT ESTABLISHED

- Check if the green LED lights up. If not, check your power supply.
- Try to start *Direct Mode* and check, if the module is detected automatically.
- Check, if you are using the right COM port and it is not blocked by another program.
- Check, if the file *TMC1021.inf* is installed correctly.
- Check your connection settings. Default: 9600 baud, address 1.
- Check if your RS485 converter functions.

#### IF MOTOR DOES NOT RESPOND

- Usually the communication is not established (see above).
- Check the motor connection.
- If you are using a TMCL program try a movement command in *Direct Mode* to check if there is a problem with it.
- Restore factory settings by using instruction 137 for cancelling all settings modified by the user.