

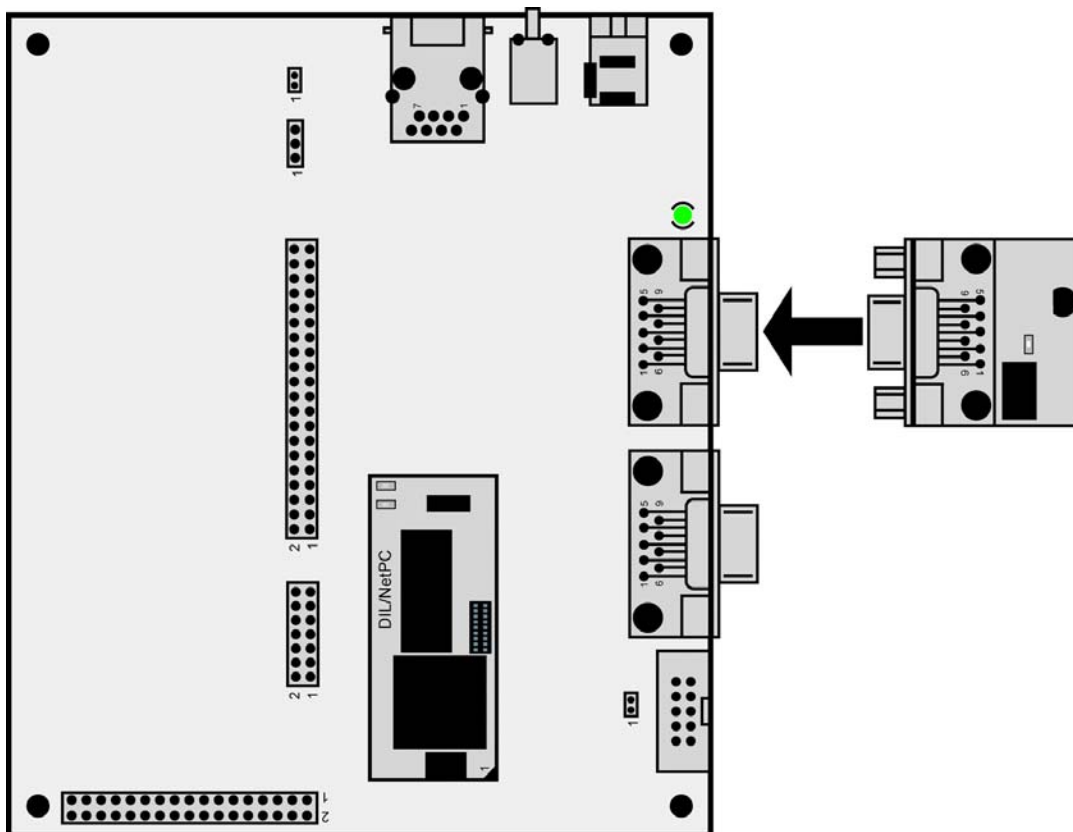
How to use the SMT-160 intelligent Temperature Sensor Board

The DIL/NetPC DNP/5280 Starter Kit CD-ROM Version 1.5 (or newer) contains some sample programs for the SMT-160 intelligent temperature sensor board. This CD-ROM comes as part of a DIL/NetPC DNP/5282 Starter Kit.

The SMT-160 is a high-quality full silicon temperature sensor with a digital output. The temperature range is from -25 °C up to +115 °C. The SMT-160 could be connected to a standard computer RS232 connector. The communication parameters for the RS232 link should be: 9.600 bps, 8 data bits, 1 stop bit, no parity check and no flow control.

The SMT-160 sends its results as a standard ASCII string. Therefore every program which is capable to receive standard ASCII strings is able to visualize the sensors output, e.g. HyperTerminal for Windows or Minicom for Linux. The measurement starts automatically after connecting the SMT-160 to a RS232 connector.

- **1. Step:** Connect the SMT-160 intelligent temperature sensor board to the COM2 RS232 port of the DNP/EVA6 evaluation board.



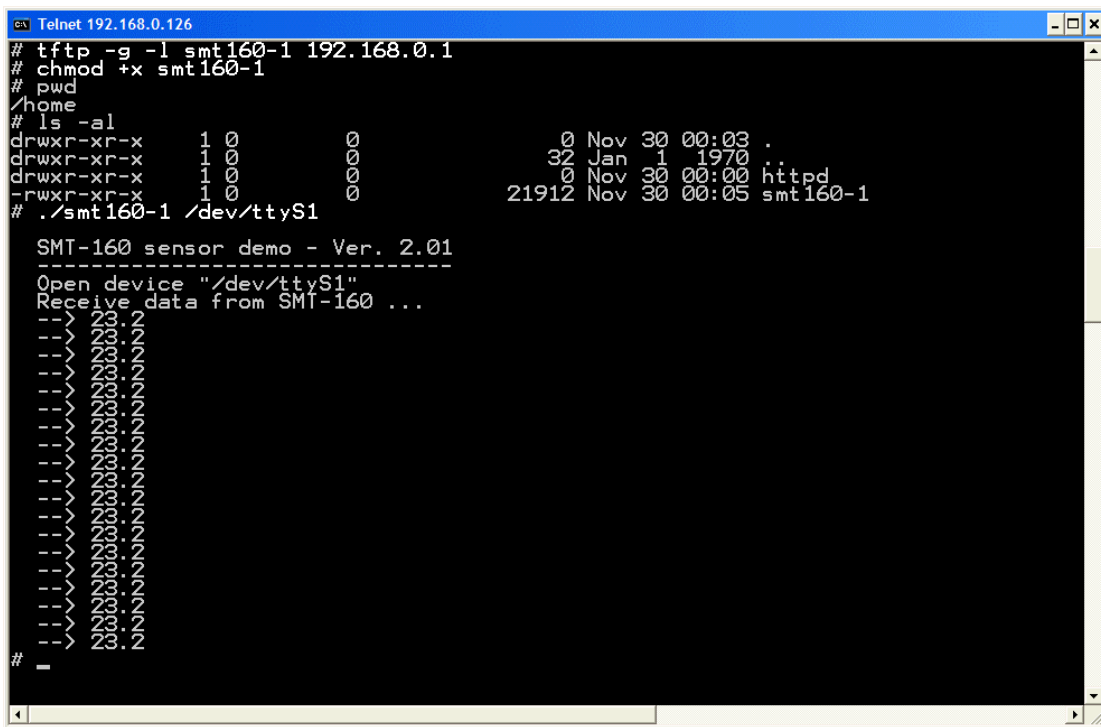
- **2. Step:** Setup a Ethernet-based Telnet session and a TFTP-based link for file transfers between your PC and the DIL/NetPC DNP/5282.
- **3. Step:** Transfer the executable file *smt160-1* from the DIL/NetPC DNP/5280 Starter Kit CD-ROM directory */uClinux/Demos/Specials/SMT160/SMT160-1* to the DNP/5282 directory */home*. Please use TFTP for this task.

- **4. Step:** Make sure that the file `/home/smt160-1` is equipped with executable attributes. Use the Linux command:

```
chmod +x smt160-1
```

on your DIL/NetPC DNP/5282 Linux direct after the TFTP file transfer. Then run this file with the following Linux command line:

```
./smt160-1 /dev/ttyS1
```



Please note: The SMT-160 sends its results as a standard ASCII string. The succeeding measurements are separated by LF, CR (0x0a, 0x0d) characters. Each measured value is send in 4 or 5 characters. For example 19.4 °C is send as “1” then “9” then “.” and “4”. In the case the temperature is higher than 100 °C an extra character is send “1”, and if the temperature is negative a “-” is send before. One measurement and calculation needs approximately 500 ms.

Top View	Pin	Name	Function
	1	---	Not Connected
	2	TXD	RS232 Data Output
	3	RXD	RS232 Data Input
	4	---	Not Connected
	5	GND	Ground
	6	---	Not Connected
	7	RTS	Power Supply Input, Driven by RTS output of DNP/EVA6
	8	---	Not Connected
	9	---	Not Connected

Table 1: Pinout SMT-160

The power supply for the SMT-160 intelligent temperature sensor boards comes over the RS232 RTS output signal of the DNP/EVA6 evaluation board.

Please note: The DIL/NetPCs DNP/5282, PNP/5280 and DNP/5280 are software compatible. Only the mechanical form factor and the pin out is different. The Linux operating system of these two systems is absolute identical.

That is all.