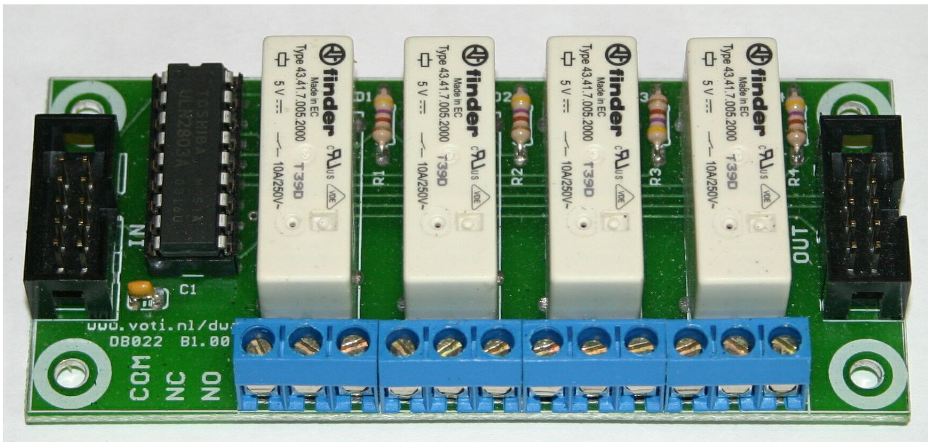
Dwarf Boards

DB022: 4 Relais

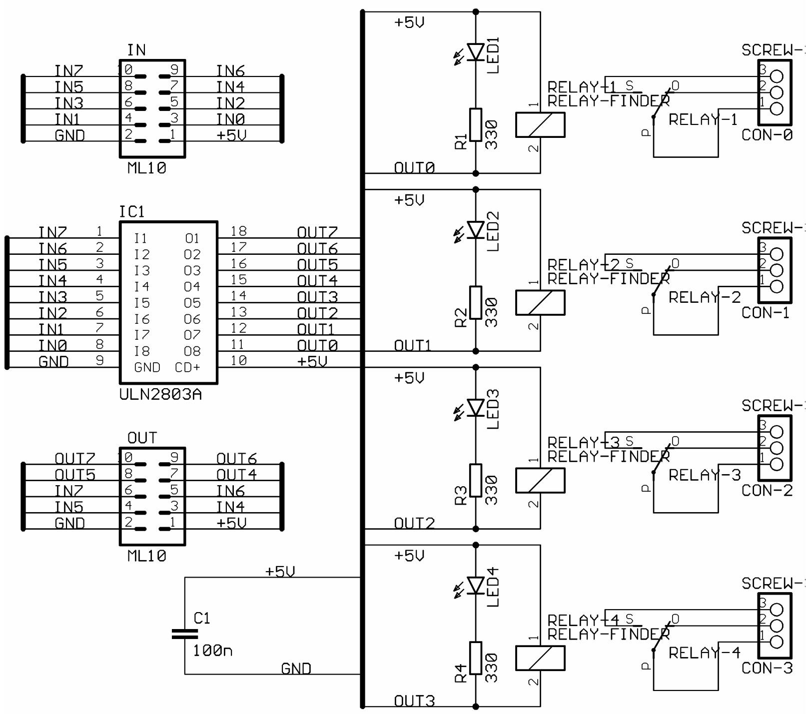
version 1.1



Introduction

This document describes the Dwarf Board DB022. This is a peripheral board with 4 relais, rated at 10A/250V each. The board has a ML10 output connector that can be used to connect a second DB022 board.

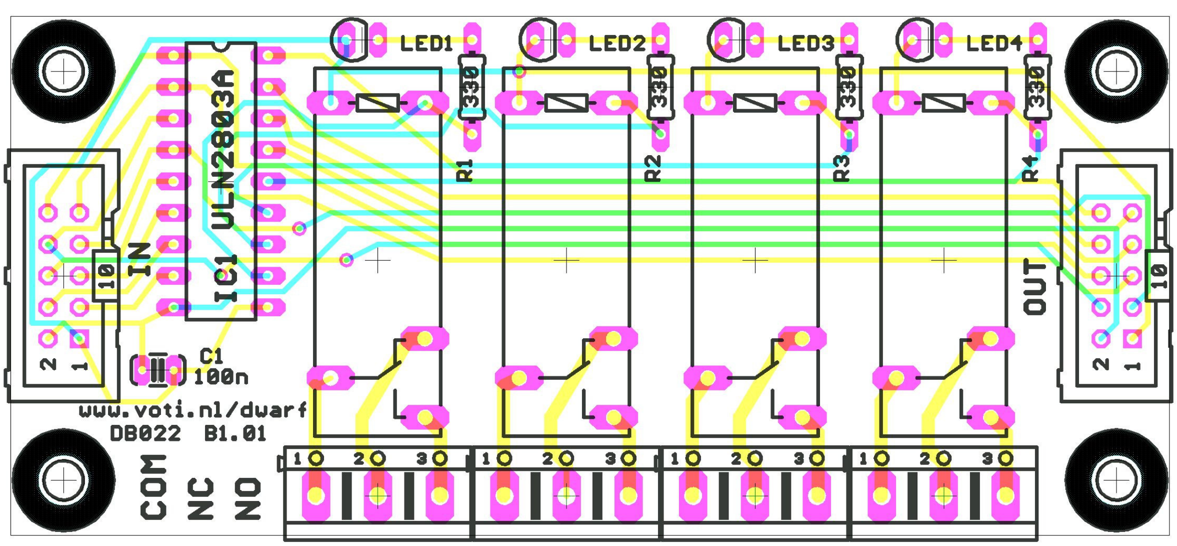
Circuit



The circuit consist of no more than an ML10 Dwarf Bus connector CON1, eight series resitors (470 ohm is recommended) and small 8 LEDs. Note that the resistors are connected to the positive power supply, so the LEDs are active low (will light up when corresponding data line is made low).

Component Placement

The figure below shows the placement of the components on the PCB.

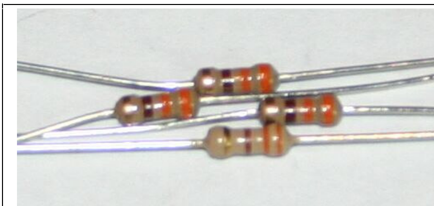
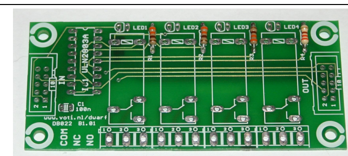
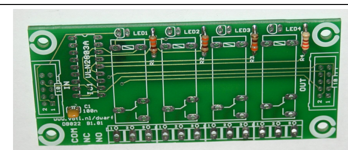
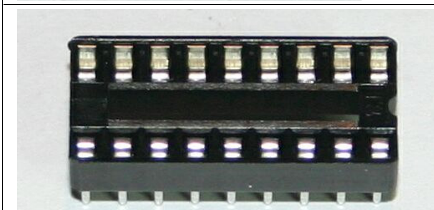
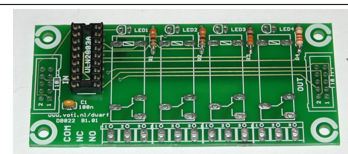
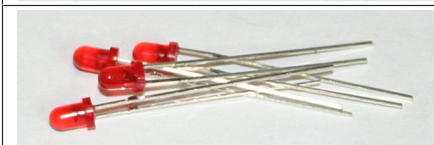
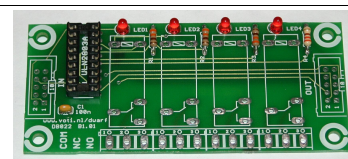
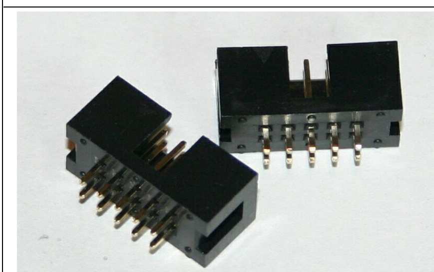
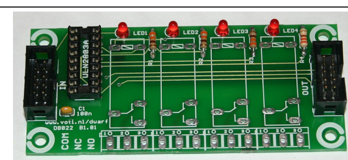


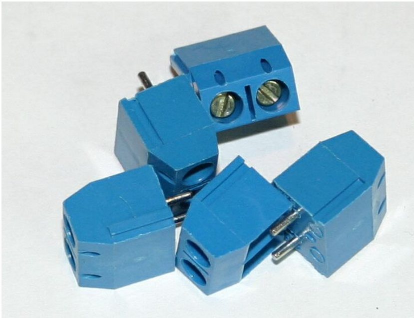
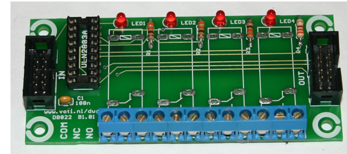
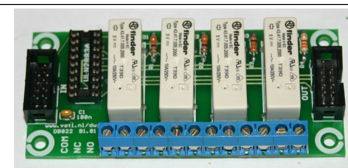
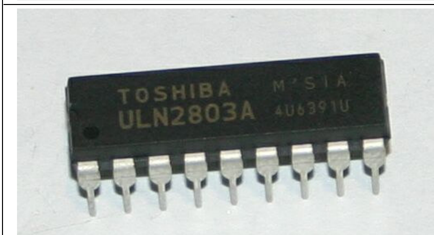
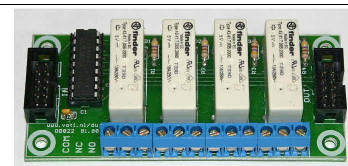
Assembly

The kit contains the PCB and all components as shown in the circuit diagram.

Assembling the kit is not difficult, no fine-pitched or SMD components are used. Just follow the instructions below carefully. Some soldering experience is recommended.

Orient the PCB as shown on the pictures and in the previous paragraph. The silkscreen (component side) text should be readable.

	Place and solder the four 330Ω resistors R1 .. R3 (marked orange-orange-brown).	
	Place and solder the 100nF capacitor C1.	
	Place and solder the IC socket. The notch in the socket should be near the capacitor.	
	Place and solder the four 3mm LEDs LED1 .. LED4. The flat side of the LED should be at the right side (as shown on the white printing on the PCB). When the LED has no flat side the longer wire must be at the left side.	
	Place and solder the two ML10 connectors. The dents should be oriented to the right.	

	Connect the screw connectors together. Place and solder the screw connectors. Don't forget that the open side must be towards the edge of the PCB.	
	Place and solder the 4 relais.	
	Insert the ULN2803 IC1 in its socket. Pin 1 (with the notch, lower left on the left picture) must be nearest to the centre of the PCB.	

Use

Using the DB022 is simple: when the DB pin is low the relais is not energised, so the COM and NC connections make contact. When the pin is high the relais is energised and the COM and NO connections make contact. Each relais has on toggle contact. The contacts of each relais are independent.

The Dwarf Bus input connector is the one nearest to the ULN2803 chip. The other connector can be used to connect a second DB022 board. The pins 0..3 of the input Dwarf Bus connector control the four relais. The pins 4..7 of the input Dwarf Bus are routed to pins 0..3 of the output (cascade) connector, so they control the relais on a second DB022.

Dwarf Notes

There are currently no Dwarf Notes that apply to this board.

Change notes

the latest version of this document can be downloaded from http://www.voti.nl/dwarf

version	**date**	**notes**
1.1	2005-06-01	small textual corrections
1.0	2005-01-12	first version