STEVAL-IHT004V1

AC timer demonstration board on HT triacs and ST7Lite1b

Data brief

Features

- 3 independent application programs
  - Hand dryer with infrared sensor and T1235H-6T switch
  - Bathroom fan with humidity sensor and ACS108 switch
  - Multi-entrance room controller with push button and BTB08-600SW switch
- Two potentiometers for setting sensor sensitivity and TRIAC turn-off delay
- Capacitive power supply (680 nF capacitor EPCOS B32923C3684
  - 5 V ±10%
  - Average output current: 16 mA
  - Standby power losses < 0.3 W @ 230 V
- Program selector (U2)
- ICC connector for software adjustment
- Free development area with hole matrix available for application breadboard adaptation
- Overvoltage protection is not implemented on the board but some solder pads are available to implement it in two different ways:
- Varistor addition between mains voltage
- Transil addition between TRIAC A2-G terminals
- RoHS compliant

AM02251v1

Description

The purpose of the demonstration board is to promote the various types of applications where a single AC switch is controlled in on/off full-phase mode. The switch control is based on information from a single sensor evaluated by an MCU.

1 Demonstration description

This demonstration is a development tool that allows users to develop their own application. Through hole technology is used for easy modification of the board for the desired function.

Three applications have been developed and are ready to use with this demonstration board as the sensors are already implemented on the board (or have to be connected to the header for the humidity sensor):

1. Hand dryer (program 1)
   - Controlled load: heating resistor and fan in parallel
   - Sensor: infrared sensor using IR diode emitter (D5) and photo-transistor receiver (Q4)
2. Bathroom fan (program 2)
   - Controlled load: low power fan
   - Sensor: humidity sensor (to be connected to P3 header)
3. Multi-entrance room light control (program 3)
   - Controlled load: light bulb, CFL lamp
   - Sensor: push button

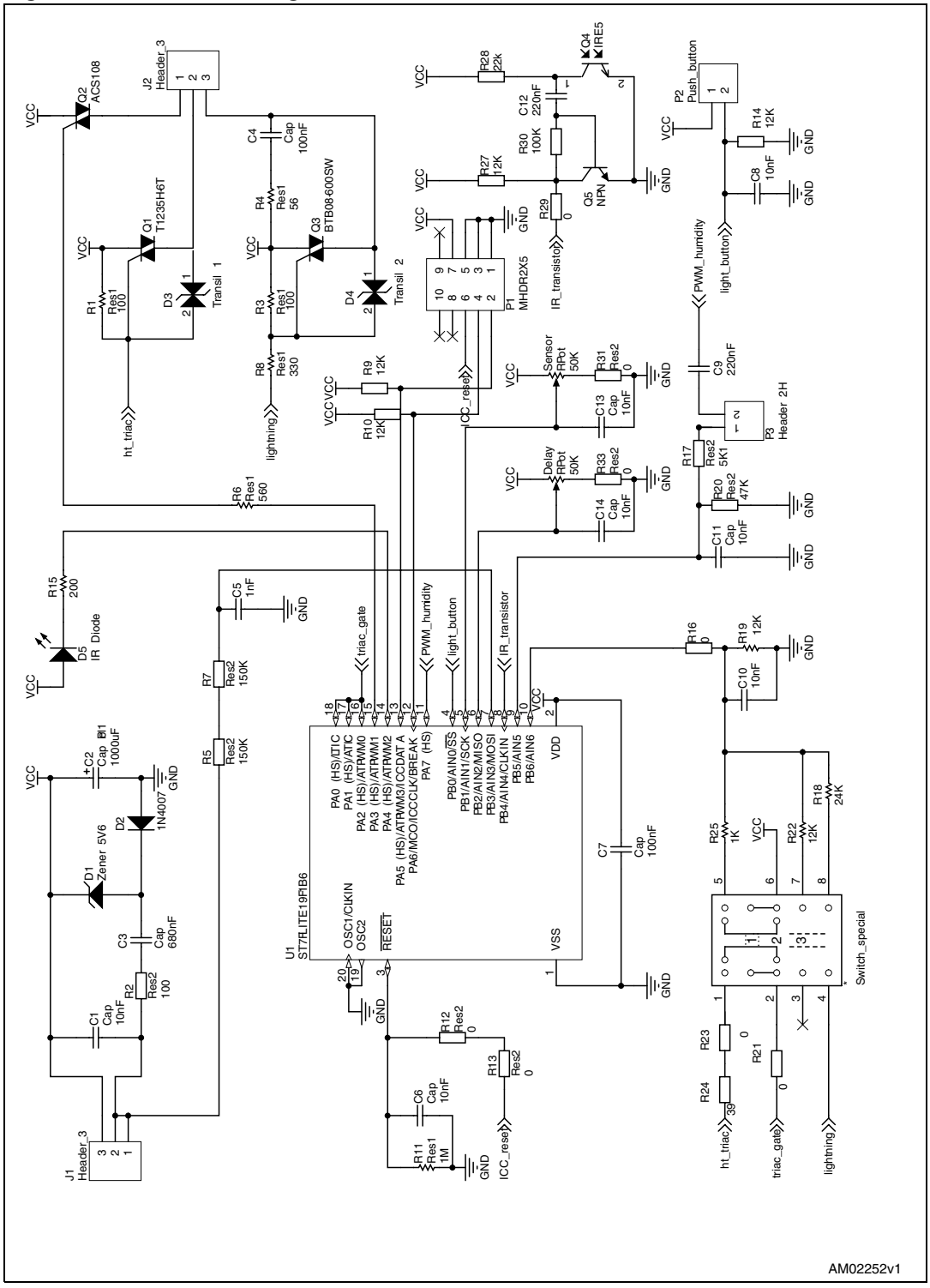
As previously stated, this board can easily be modified.

For example, here is a list of other possible applications that can be considered thanks to little software and hardware modifications:

- Water heater thermostat
- Household temperature control
- Humidity control (wood storage)
- Flood protection system (pump or valve control)
- Motion detector (outside lightning)
- The added advantages of this board are:
- Spark free operation
- No EMI or acoustic noise

2 Circuit schematic

Figure 1. Schematic diagram



3 Revision history

Table 1. Document revision history

Date	Revision	Changes
16-Jul-2009	1	Initial release.