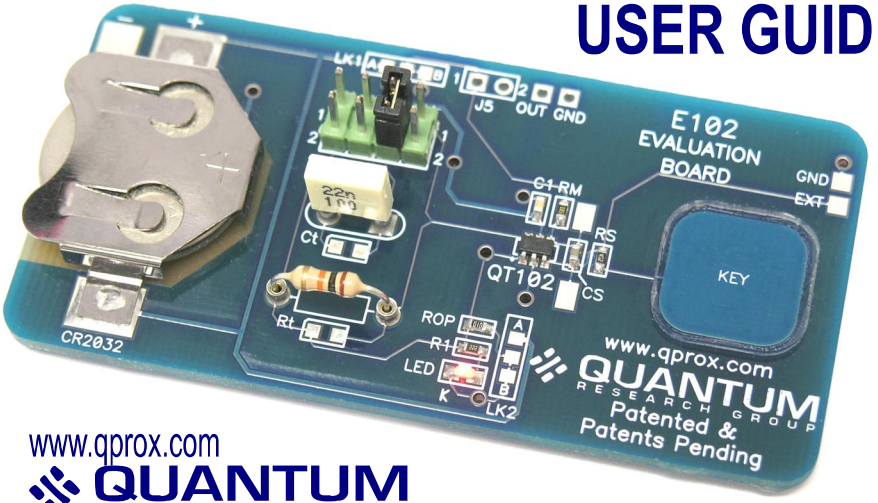
E102 EVALUATION BOARD
USER GUIDE



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Using the E102:

This kit is designed for the evaluation and development of applications using the QT102-ISG Integrated Circuit (IC).

Refer to the QT102-ISG datasheet for details (see www.qprox.com/downloads).

- Insert the battery provided into the battery holder on the E102 board.
  Ensure that the battery has the correct orientation (negative (-) side to board) or the E102 will not work.

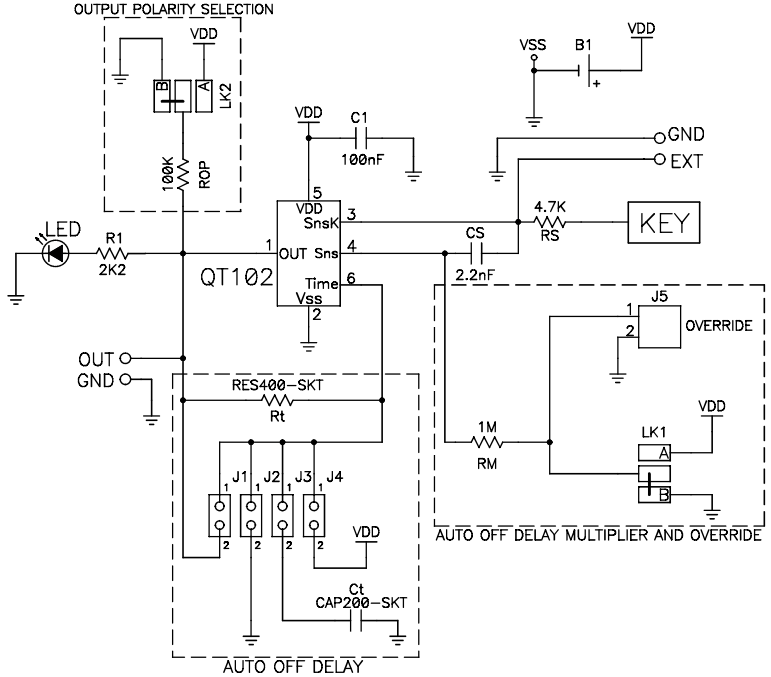
- Touch KEY and the LED will light. After the Auto-off Delay is reached (actual time is dependent on Voltage level, Ct and Rt tolerances), the LED will switch off.

Default setting: User-set Auto-Off Delay (J3 Pins 1 & 2) of 87 seconds. (Ct = 22nF, Rt = 10 kΩ)

Note: *LED will light when KEY is touched if the QT102 is set to Active High Output.*
If QT102 is changed to give Active Low Output, then the LED will light until KEY touched.

An external power supply can be used instead of a battery.
WARNING: if an external power supply is used then the battery **MUST** be removed.

Schematic:


OUTPUT_POLARITY SELECTION
VDD
B
A
LK2
100K
ROP
VDD
C1
100nF
VSS
B1
VDD
GND
EXT
LED
R1
2K2
5
VDD
SnsK
3
1
OUT Sns
4
QT102
Time
6
Vss
2
CS
2.2nF
4.7K
RS
KEY
J5
1
2
OVERRIDE
OUT
GND
RES400-SKT
Rt
1M
RM
VDD
LK1
A
B
J1
J2
J3
J4
VDD
Ct
CAP200-SKT
AUTO OFF DELAY
AUTO OFF DELAY MULTIPLIER AND OVERRIDE

Configuring the E102:

The Auto-Off Delay and Output Polarity can be set using the table below:

Jumper Position (Pins 1-2)	Auto-Off Delay			
J1	60 Minutes	60 Minutes	24 Hours	24 Hours
J2	Infinite	15 Minutes	Infinite	6 Hours
J3	User (Ct,Rt)	User (Ct,Rt)	User (Ct,Rt)	User (Ct,Rt)
J4	15 Minutes	Infinite	6 Hours	Infinite

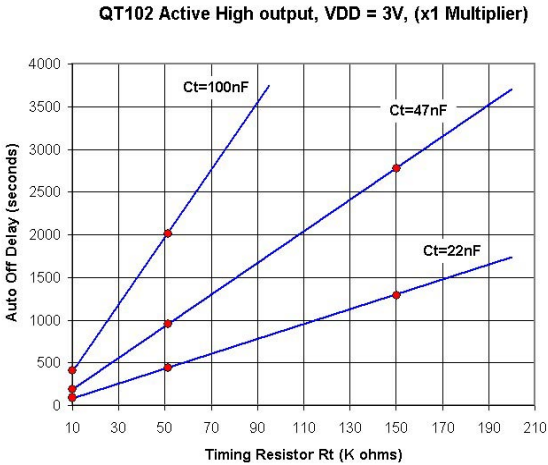
Multiplier: (LK1)	*x1: (VSS)*	*x1: (VSS)*	*x24: (VDD)*	*x24: (VDD)*
Output: (LK2)	Active High: (VSS)	Active Low: (VDD)	Active High: (VSS)	Active Low: (VDD)

The E102 can be used to connect a User electrode to the QT102 (using EXT and GND pads: The value of Cs may require changing. Large pads either side of Cs are available for fitting leaded capacitors in parallel). The E102 can also connect to a User output (using OUT and GND pads).

The Auto-Off Delay can be extended or the QT102 output can be switched off immediately by pulsing the voltage on the delay multiplier resistor RM through J5.
(Refer to QT102 Datasheet for further details)

User-Programmed Auto-Off Delay:

By changing the values of Ct and Rt, the Auto-Off Delay can be changed. See chart for examples:



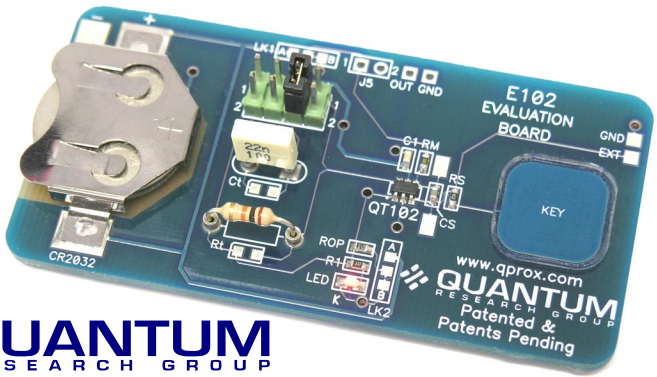
The values highlighted on the chart can be achieved using supplied kit components.

Troubleshooting:

Problem	Potential Solution
E102 does not work	If using a battery, check that the negative (-) side is facing the board. Check/replace battery, check connections. If using an external power supply, check that the correct connections have been made. *(Ensure the battery has been removed)*
Inaccurate timeout values	Rt/Ct/voltage tolerance dependent. Measure the actual values
Unexpected timeout delay	Ensure that the J1, J2, J3 or J4 is set correctly.
Timeout delay not x1 or x24, as expected	Check LK1 setting.
LED unexpectedly on	Check LK2 setting.

E102 Kit Contents:

1x E102 Evaluation Board			
1x CR2032 Battery, 3V, 235mAh			
2x sample QT102-ISG ICs			
1x E102 User Guide			
Example Ct (47nF, 100nF) & Rt (51kΩ, 150kΩ) Components			
Packed by:		*Dated:*	



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