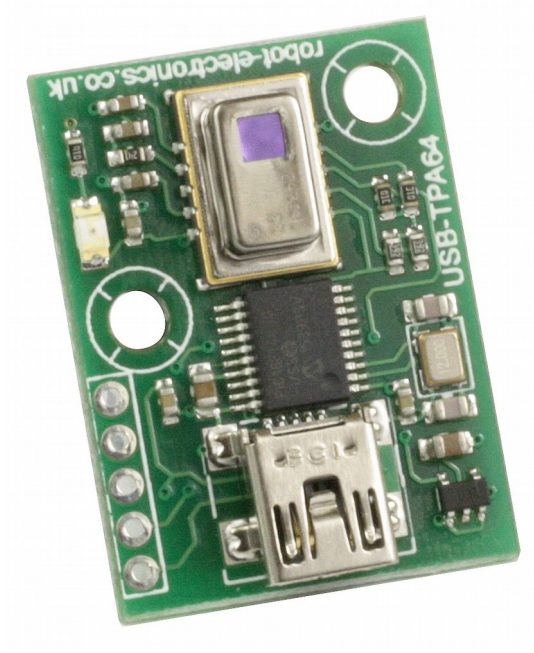


USB-TPA64

Technical Documentation



Features

Temperature detection of two-dimensional area: 8×8 (64 pixels)

Temperature accuracy of $\pm 2.5^{\circ}\text{C}$ over 0°C to 80°C rated range

Human detection at up to 7m

Viewing angle 60° , optical axis gap 5.6°

Current consumption 4.5mA

Weight is only 4g

Size 24mm x 32mm

Commands

Command	Action
0x38	Get serial number - returns 8 byte ASCII formatted serial number
0x5A	Get module info - returns 2 bytes. Module Id (37 for USB-TPA64), Firmware version.
0x5B	Get all temperatures - returns 130 bytes, described below
0x5C	Get thermistor temperature – returns 2 bytes, described below
0x5D	Get thermopile temperatures – returns 128 bytes, described below

0X5B – Get all temperatures returning 130 bytes

The first two bytes contain the onboard thermistor temperature. Each bit is 0.0625°C, signage in bit 3 of the high byte

Byte 0 Thermistor low byte	T7	T6	T5	T4	T3	T2	T1	T0
Byte 1 Thermistor high byte	x	x	x	x	+/-	T10	T9	T8

Temperature	Binary number	HEX number
+125°C	0111_1101_0000	0x7D0
+25°C	0001_1001_0000	0x190
+0.25°C	0000_0000_0100	0x004
0°C	0000_0000_0000	0x000
-0.25°C	1000_0000_0100	0x804
-20°C	1001_0100_0000	0x940

The next 128 bytes containing 64 temperatures returned from the thermopile array. Data is in 2's compliment form Each bit is 0.25°C, signage in bit 3 of the high byte

Byte x (2 to 128) Thermopile cell low byte	T7	T6	T5	T4	T3	T2	T1	T0
Byte x+1 (3 to 129) Thermopile cell high byte	x	x	x	x	+/-	T10	T9	T8

Temperature	Binary number	HEX number
+125°C	0001_1111_0100	0x1F4
+25°C	0000_0110_0100	0x064
+0.25°C	0000_0000_0001	0x001
0°C	0000_0000_0000	0x000
-0.25°C	1111_1111_1111	0xFFFF
-25°C	1111_1001_1100	0xF9C
-55°C	1111_0010_0100	0xF24

0X5C – Get thermistor temperature returns 2 bytes

Returns two bytes containing the onboard thermistor temperature. Each bit is 0.0625°C, signage in bit 3 of the high byte

Byte 0 Thermistor low byte	T7	T6	T5	T4	T3	T2	T1	T0
Byte 1 Thermistor high byte	x	x	x	x	+/-	T10	T9	T8

Temperature	Binary number	HEX number
+125°C	0111_1101_0000	0x7D0
+25°C	0001_1001_0000	0x190
+0.25°C	0000_0000_0100	0x004
0°C	0000_0000_0000	0x000
-0.25°C	1000_0000_0100	0x804
-20°C	1001_0100_0000	0x940

0X5D – Get thermopile temperatures returns 128 bytes

Returns 128 bytes containing 64 temperatures returned from the thermopile array. Data is in 2's complement form Each bit is 0.25°C, signage in bit 3 of the high byte

Byte x (0 to 126) Thermopile cell low byte	T7	T6	T5	T4	T3	T2	T1	T0
Byte x+1 (1 to 127) Thermopile cell high byte	x	x	x	x	+/-	T10	T9	T8

Temperature	Binary number	HEX number
+125°C	0001_1111_0100	0x1F4
+25°C	0000_0110_0100	0x064
+0.25°C	0000_0000_0001	0x001
0°C	0000_0000_0000	0x000
-0.25°C	1111_1111_1111	0xFFFF
-25°C	1111_1001_1100	0xF9C
-55°C	1111_0010_0100	0xF24