
One Wire Extended Library for DS18x20 devices

V1.0.0.0

The purpose of this library is to provide extended functionalities for DS18x20 devices like **Cyclic Redundancy Check**.

Library Dependencies

One_Wire

External dependencies of One Wire Extended Library

No external dependencies.

Library Routines

- Ow_CRC

Ow_CRC

Prototype	<code>unsigned char Ow_CRC(unsigned char *scratchPad);</code>																			
Returns	Returns 0 when CRC is okay. In case of any CRC error it returns a number which is greater than 0.																			
Description	<p>It verifies with CRC whether the data was received error free or not. The DS18x20 devices generate CRC byte for the whole Scratch Pad; therefore the function needs all 9 bytes.</p> <p>Parameters :</p> <ul style="list-style-type: none">▪ <code>*scratchPad</code>: Scratch Pad array. All 9 bytes are required for CRC. <table border="1"><tr><td>Byte 0</td><td>Temperature LSB (AAh)</td><td rowspan="2">} (85°C)</td></tr><tr><td>Byte 1</td><td>Temperature MSB (00h)</td></tr><tr><td>Byte 2</td><td>T_H Register or User Byte 1*</td></tr><tr><td>Byte 3</td><td>T_L Register or User Byte 2*</td></tr><tr><td>Byte 4</td><td>Reserved (FFh)</td></tr><tr><td>Byte 5</td><td>Reserved (FFh)</td></tr><tr><td>Byte 6</td><td>COUNT REMAIN (0Ch)</td></tr><tr><td>Byte 7</td><td>COUNT PER °C (10h)</td></tr><tr><td>Byte 8</td><td>CRC*</td></tr></table>	Byte 0	Temperature LSB (AAh)	} (85°C)	Byte 1	Temperature MSB (00h)	Byte 2	T _H Register or User Byte 1*	Byte 3	T _L Register or User Byte 2*	Byte 4	Reserved (FFh)	Byte 5	Reserved (FFh)	Byte 6	COUNT REMAIN (0Ch)	Byte 7	COUNT PER °C (10h)	Byte 8	CRC*
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Byte 8	CRC*																			

Example

```
unsigned char dsScratchPad[9] = {0, 0, 0, 0, 0, 0, 0, 0, 0};
unsigned char i;

...

Ow_Reset(&PORTA, 2);
Ow_Write(&PORTA, 2, 0xCC);           //Issue command SKIP_ROM
Ow_Write(&PORTA, 2, 0xBE);           //Issue command READ_SCRATCHPAD
for (i = 0; i < 9; i++) {           //Read whole scratchpad
    dsScratchPad[i] = Ow_Read(&PORTA, 2);
}

if(Ow_CRC(dsScratchPad) > 0) {
//DS18x20 CRC error
}
else {
//DS18x20 CRC ok
}
```