

```
// Arduino Uno R3 Example Test sketch „water level measurement“  
// please copy/past the whole text to your Arduino IDE Tool
```

```
// declaration of variables
```

```
float Volumen; // variable called Volumen  
float Vol_m3;  
float fuellhoehe; // variable of measured height level
```

```
int trigger=7; //Trigger-Pin of Ultrasonic sensor at Pin7 of Arduino-Board, please verify your pin  
int echo=6; // Echo-Pin of Ultrasonic sensor at Pin6 of Arduino-Board, please verify your pin  
long dauer=0; // storing the travel time from sending to receiving the ultrasonic wave. Start value =0.  
long entfernung=0; // „entfernung“ is a variable to save the calculated distance
```

```
// Set-up section
```

```
void setup()  
{  
Serial.begin (9600); //Start serial setup for being used in Arduino IDE  
pinMode(trigger, OUTPUT); // Trigger-Pin is an Output  
pinMode(echo, INPUT); // Echo-Pin is an Input  
}
```

```
// Loop of the measurement
```

```
void loop()  
{
```

```
// sensor signal processing and reading travelling time
```

```
digitalWrite(trigger, LOW); // Short "off" signal for no noise of previous ultrasonic waves  
delay(5); //Duration: 5 milliseconds  
digitalWrite(trigger, HIGH); //Sending the ultrasonic wave  
delay(10); //Duration: 10 milliseconds  
digitalWrite(trigger, LOW); //Switching of the sending signal  
dauer = pulseIn(echo, HIGH); // „pulseIn“ microcontroller counts time from sender to receiver
```

```
//calculation of distance
```

```
entfernung = (dauer/2) * 0.03432;  
//dividing the value by "2" for single distance and multiplying with velocity of sound in  
(cm/microseconds) to receive "cm".
```

```
if (entfernung >= 330 || entfernung <= 0) //only use values in a range between max height 330 cm  
(please adapt) and lowest height zero level of the cistern, otherwise send "no value"
```

```
{  
Serial.println("no value"); // or any other message  
}  
Else // do something else  
{
```

```
// Calculation of cistern volume
```

```
// Manually measure the distance of cistern bottom to sensor = example distance 262 cm (please  
adapt to your given distance)
```

```
fuellhoehe = 262 - entfernung; // calculation of filling height  
Volumen = 125 * 125 * 3.14 * fuellhoehe; // cistern volume with a diameter 250 cm  
Vol_m3 = Volumen / 1000000; // calculation to m3
```

```
// Printing to Serial Monitor
```

```
Serial.print(Vol_m3);  
Serial.println(" m3"); // Putting the unit of measurement behind the value  
}  
delay(2000); // Next value is done every two sec. please adapt cycle time  
}
```