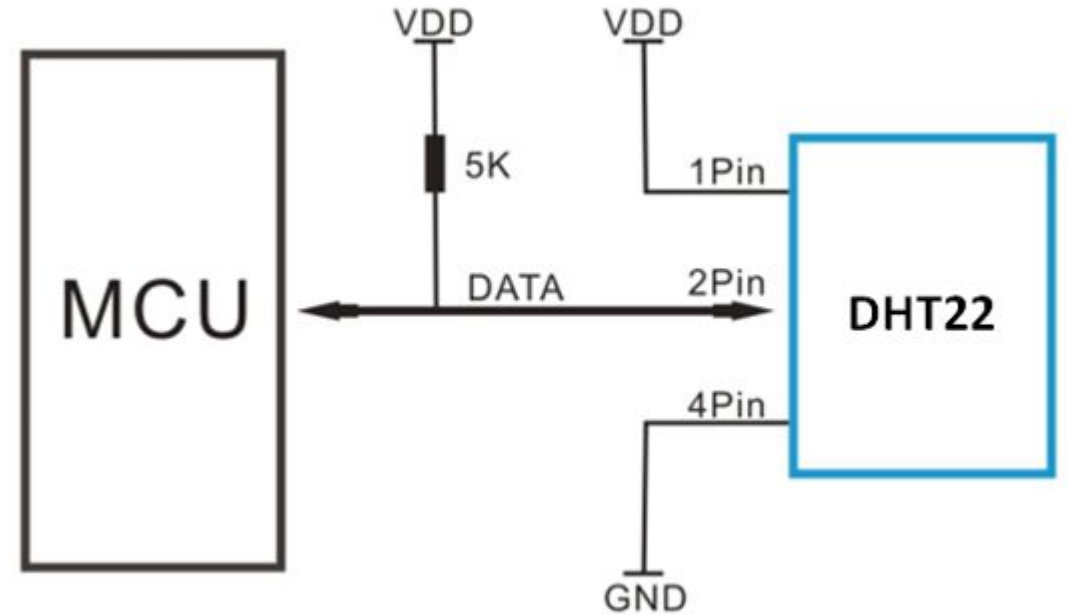


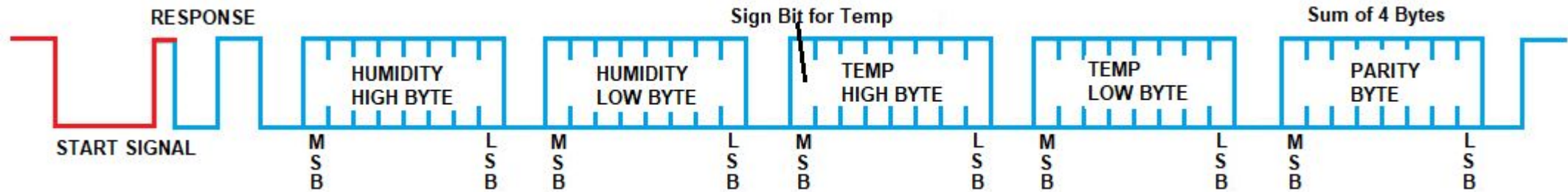
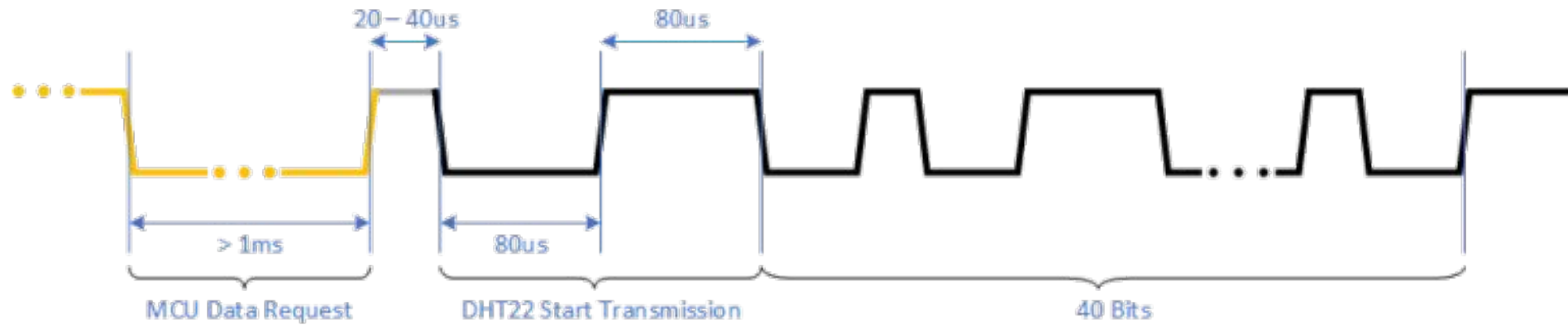
# How to Read From DHT22 Sensor?

## DHT22 Specifications:

- Operating Voltage: 3.5V to 5.5V
- Operating current: 0.3mA
- Output: Serial data
- Resolution:
  - ❖ Temperature: 16-bit
  - ❖ Humidity: 16-bit
  - ❖ Sum : 8-bit
- Accuracy:  $\pm 0.5^{\circ}\text{C}$  and  $\pm 1\%$



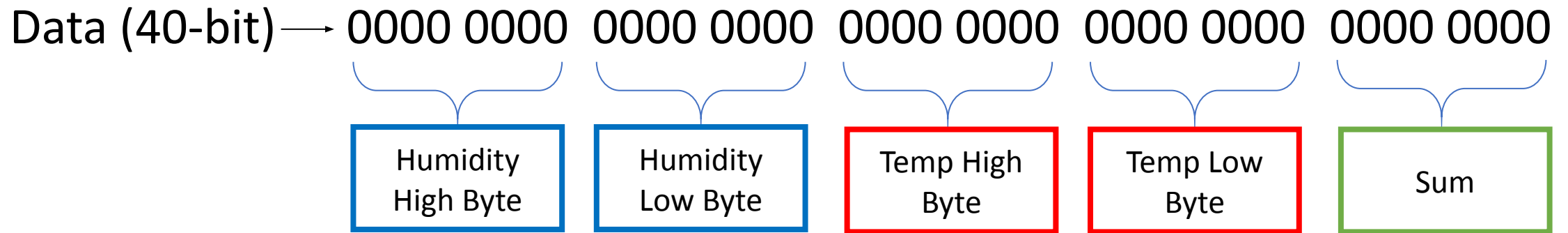
# DHT22 Timing Diagrams



## ❖ How to calculate Temperature and Humidity from the serial data?

Single-bus data format is used for communication and synchronization between MCU and DHT22 sensor. One communication process is about 4ms.

Data consists of decimal and integral parts. A complete data transmission is 40-bit, and the sensor send higher data bit first.



☐ Humidity (%) = (Humidity High Byte + Humidity Low Byte) / 10

☐ Temperature (°C) = (Temp High Byte + Temp Low Byte) / 10

Where temperature (°F) = (°C × 9/5) + 32

# Data Schema

```
"TIMESTAMP": {  
    "HIVE NUMBER": {  
        "SENSOR": {  
            "DATA": {  
                raw data here  
            }  
        }  
    }  
}
```

- This implementation allows for any number of hives, any number of frames, any number of sensors on each frame, and whatever data is needed across any amount of time.
- This approach has allowed for us to implement newer sensors if need be into the design.

# Forward

Other sensors have been documented with derivations. Such justifications can be found here: [DesignSolution](#)