

## Introduction

With the increasing of powering meter functions , the circuit is becoming more and more complex, resulting in the growing failure rate. For example, the powering meter terminals are loosened due to human or other factors and cause the powering meter burn out, thus bringing inconvenience and unnecessary economic losses to users. As the abnormal increase of powering meter terminal temperature is the precursor of powering meter burnout, the terminal temperature measurement is especially important.

Besides, the ambient temperature, atmospheric pressure and pipeline medium temperature, pressure, etc. have a great impact on the accuracy of natural gas measurement. Therefore, the medium temperature, pressure will be calibrated and converted into the volume of flow in standard condition for the flow meters. This calibration process is the temperature and pressure compensation by measuring the field temperature and pressure data.

## Features

- Ultra-high accuracy, no extra system compensation
- 2-pins to replace NTC
- No ADC resources occupied
- Fast response

## Related products

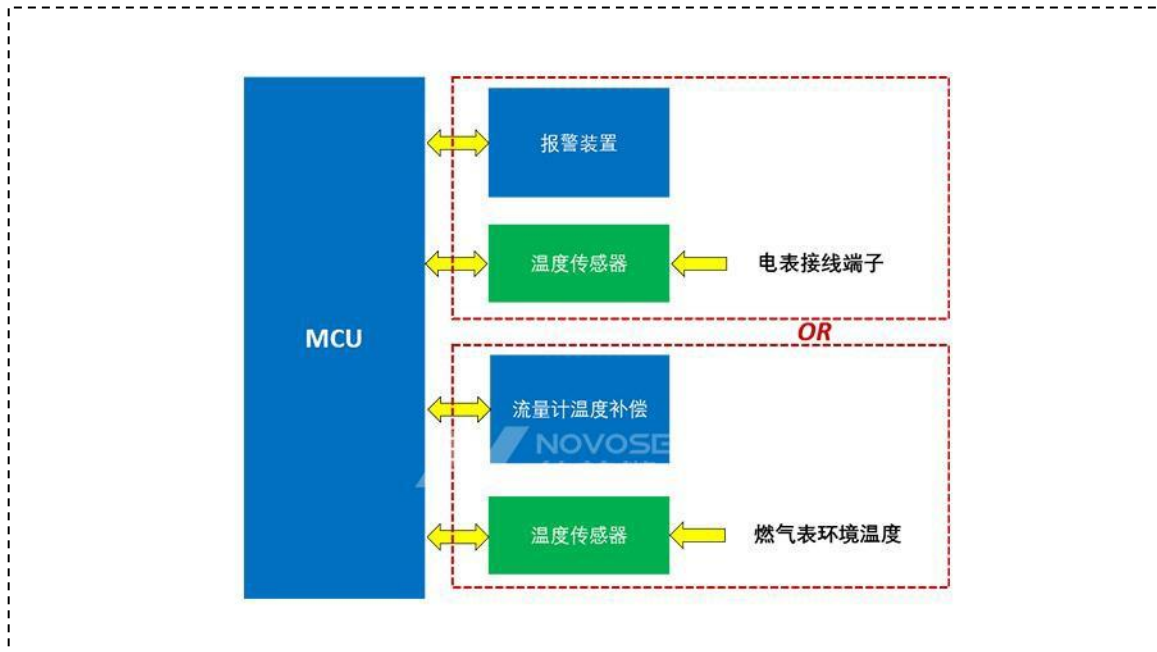
NS18B20 series

NST1001 series

## Applications

- Temperature measurement of powering meter terminals
- Temperature compensation of gas meter
- General environmental monitoring

## Block diagram



## Related Product Recommendations

- **NS18B20 Digital Temperature Sensor with I2C Interface in Ultra-small Package, High Accuracy and Low Power Consumption**

NS18B20 is a highly accurate temperature measurement chip on single bus. The temperature sensor can measure temperature in the range of  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ . The digital conversion accuracy and temperature measurement speed can be set by configuring registers upon request by user. The chip has a built-in 5byte non-volatile memory for user, of which 3byte is used for high and low temperature alarms and accuracy configuration, and 2byte is used for saving user-defined information, with a non-volatile memory writing cycle of 10ms. The maximum deviation is  $\pm 0.5^{\circ}\text{C}$  in the range of  $-10^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  and  $\pm 1^{\circ}\text{C}$  over the full temperature range. NS18B20 can be parasitically powered or externally powered, and the former can be achieved by the data line solely. Each NS18B20 has a unique 64-bit serial number, to enable the multiple devices to be connected to the same bus by using a single bus interface, thus allowing one processor to control multiple NS18B20 sensors.

- **NST1001: High Accuracy 2-Pin Digital Pulse Output Temperature Sensor**

NST1001, a highly accurate 2-pin digital pulse output temperature sensor, is part of the NOVOSENSE D-NTC<sup>®</sup> series. The product has an output accuracy of less than  $\pm 0.75^{\circ}\text{C}$  in a wide temperature range of  $-50^{\circ}\text{C}$  to  $150^{\circ}\text{C}$ . NST001HA can achieve an output accuracy of  $\pm 0.2^{\circ}\text{C}$  (Max) at room temperature, and its unique pulse count type digital output can be directly connected to the MCU GPIO interface, thus reducing the resource occupation of the MCU and cost while ensuring the accuracy. NST1001 has only two pins, can drop-in replace NTC thermal resistance. It is simpler to use, digital, and more accurate, and can achieve highly accurate temperature detection over the full temperature range without requiring system calibration or hardware/software compensation.

For more information about our products, please visit [www.novosns.com](http://www.novosns.com)

For sample request, please email [sales@novosns.com](mailto:sales@novosns.com)

## Revision History

Revision	Description	Date
1.0	Initial Version	2021/3/3

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