



DS4 Digital Smart Gas Sensor

AQS Protocol

UART Interface

CRC Calculation Example:

“:VOC,0.300ppm,29026”

Valid Data: “:VOC,0.300ppm,”

Hex Data: 0x3A,0x56,0x4F,0x43,0x2C,0x30,0x2E,0x33,0x30,0x30,0x70,0x6D,0x2C

The value obtained by calculating the Modbus CRC for hexadecimal data: 0x71,0x62

The decimal value of the MODBUS-CRC is: 0x7162 = 29026

The complete data is: “:VOC,0.300ppm,29026”

CRC-16/Modbus Calculation Method:

Calculation Method: $x_{16} + x_{15} + x_2 + 1$

C Language Calculation Function:

uint16_t get_modbus_crc(uint8_t *buffer, uint16_t len)

```
{
    uint16_t wrcrc = 0xFFFF;
    uint8_t temp;
    uint16_t i = 0, j = 0;
    for (i = 0; i < len; i++)
    {
        temp = *buffer & 0X00FF;
        buffer++;
        wrcrc ^= temp;
        for (j = 0; j < 8; j++)
        {
            if (wrcrc & 0X0001)
            {
                wrcrc >>= 1;
                wrcrc ^= 0XA001;
            }
            else
            {
                wrcrc >>= 1;
            }
        }
    }
    return wrcrc;
}
```



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