Advantech AE Technical Share Document

Date	2023/08/31	**SR#**	1-3364524411
Category	■FAQ □SOP	**Related OS**	N/A
Abstract	What is Counter Width definition for DI On WISE-4000 Modbus TCP server?		
Keyword	WISE, Counter Width, Modbus TCP, Counter period, counter startup value, RTC value		
Related Product	WISE-4012, WISE-4012E, WISE-4050, WISE-4051, WISE-4060		

■ Problem Description:

How to setup counter startup value through Modbus address? What is “counter width”? How to R/W “counter width”? How to count the counter period through Modbus address? How to read RTC through Modbus TCP?
User can **read counter period**, **R/W counter value**, and **read RTC value** through “Counter Width” address.

■ Brief Solution:

There is “Counter Width” on the configuration page of Modbus address of web utility (figure 1). User can **read counter period**, **R/W counter value**, and **read RTC value** through this address.

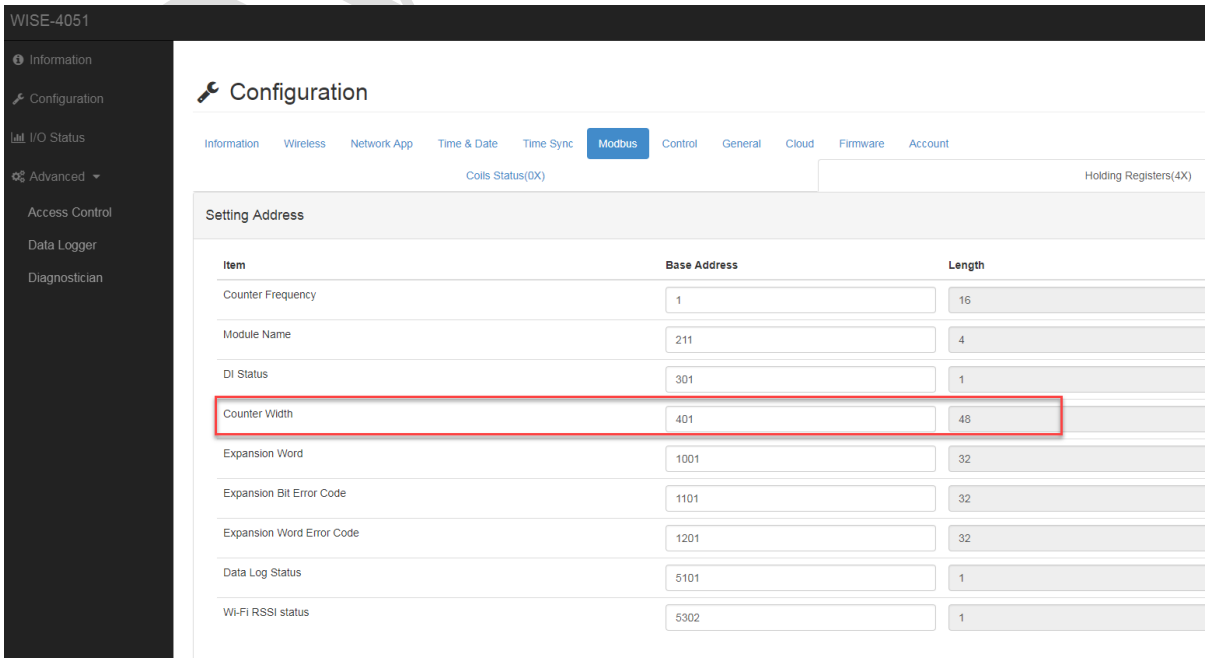

Figure 1. Counter Width

The length of Counter Width depends on the number of DI channels of the module, and each DI channel occupies 6 bytes. Such as WISE-4051 has 8-ch of DI, the length of Counter Width is 48. WISE-4012 has 4-ch of DI maximum; the length of Counter Width is 24.

Here, this document explains how it works though channel 3 of WISE-4051.
In figure 2, channel 3 is setup as a counter, the Modbus address is 40419 – 40424, totally 6 bytes.

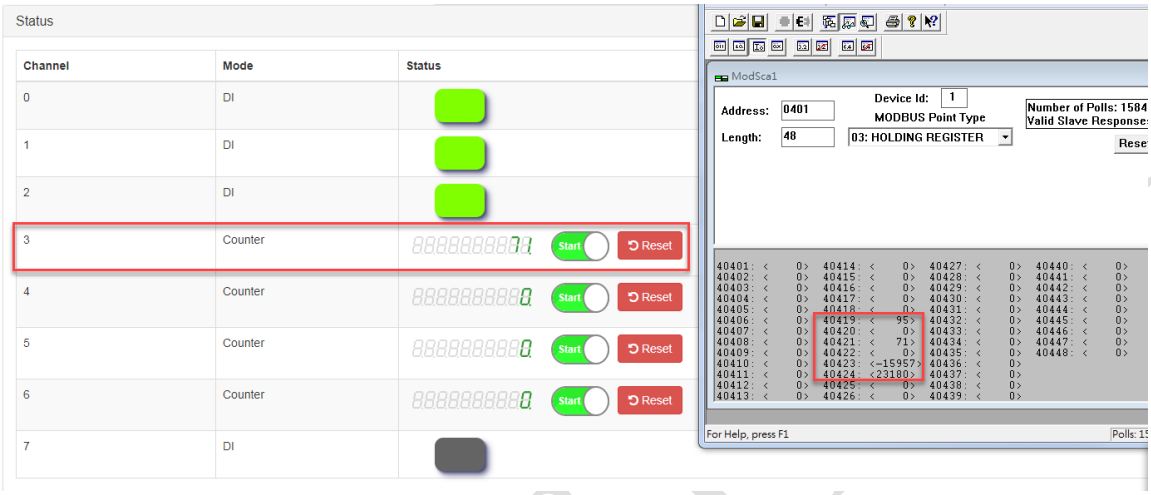

Figure 2. Channel 3 and the corresponding address.

Section I. Read counter period

The first 2 bytes indicates the period of N^{th} pulse and $N\text{-}1^{th}$ pulse with unit millisecond.

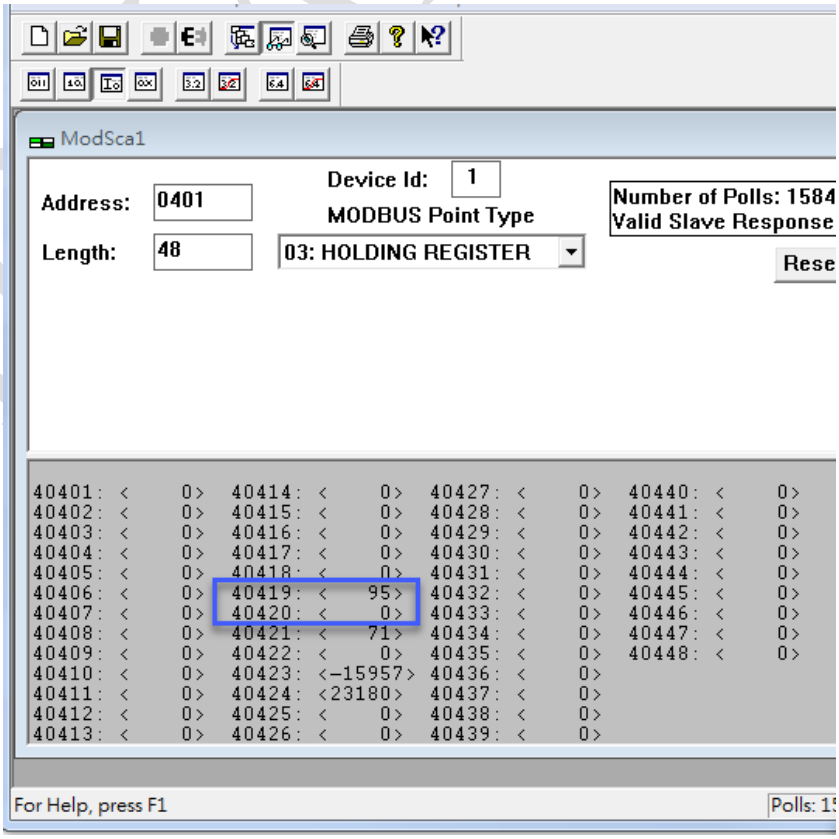

Figure 3. The period of N^{th} pulse and $N-1^{th}$ pulse with unit millisecond.

Section II. R/W counter value

The address 40421 – 40422 indicates the counter value. This value can be written into different value. So, user can setup the startup value through this address.

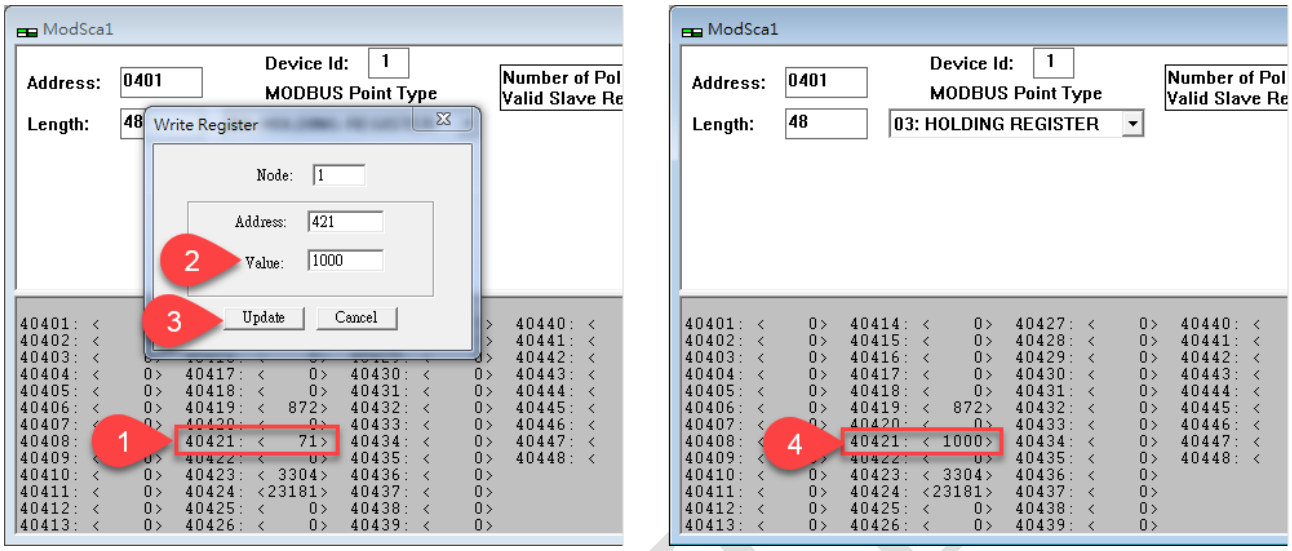

Figure 4. The addresses of counter value.

Section III. Read RTC value

The last 2 bytes shows the value of RTC (real-time clock). Suggest using binary to read the value. For example, in figure 5 (a), shows in decimal format, but cannot directly read by human's eyes.

After extract the binary value of figure 5 (b), and convert into decimal format, it is 1519193316. This number is represented as UTC format. Copy-past into website and convert the format into GMT, as shown in figure 6.

Table 1. Example of RTC value.

Address	40424	40423
Binary value	101101010001101	0000110011100100
Decimal value	1519193316	

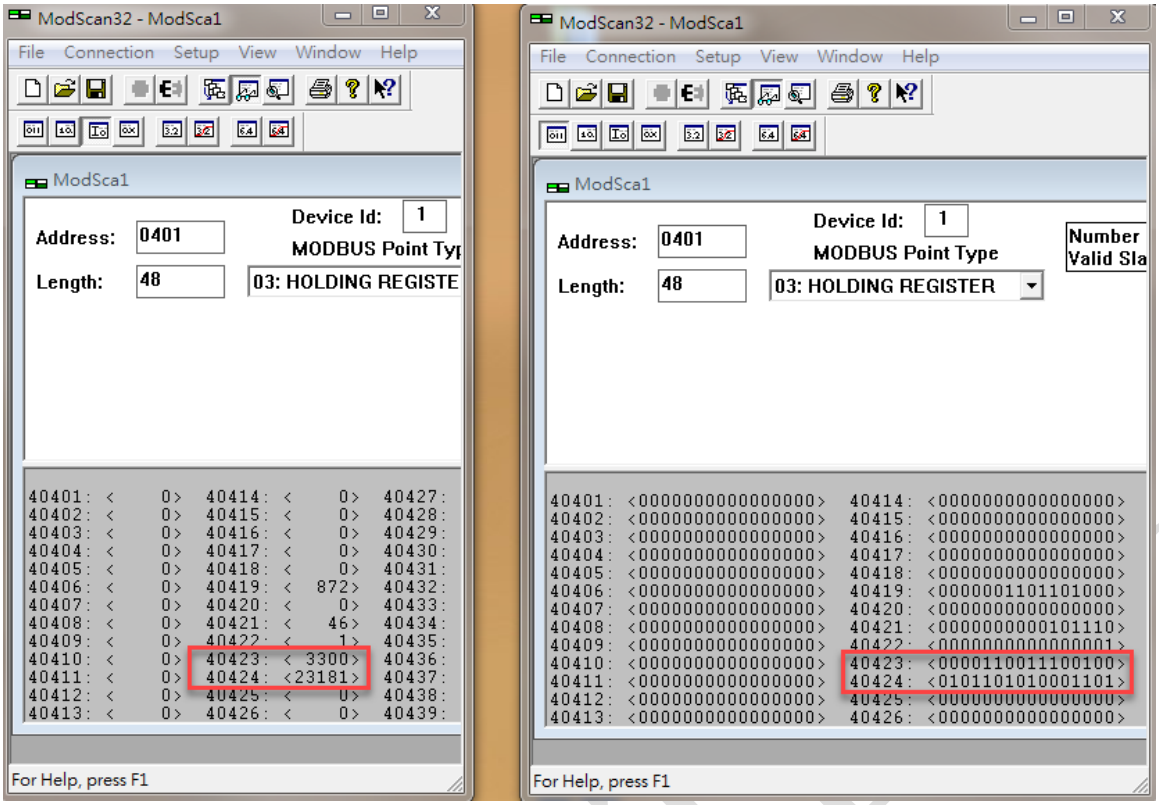

Figure 5. (a) RTC in decimal format. (b) RTC in binary format.

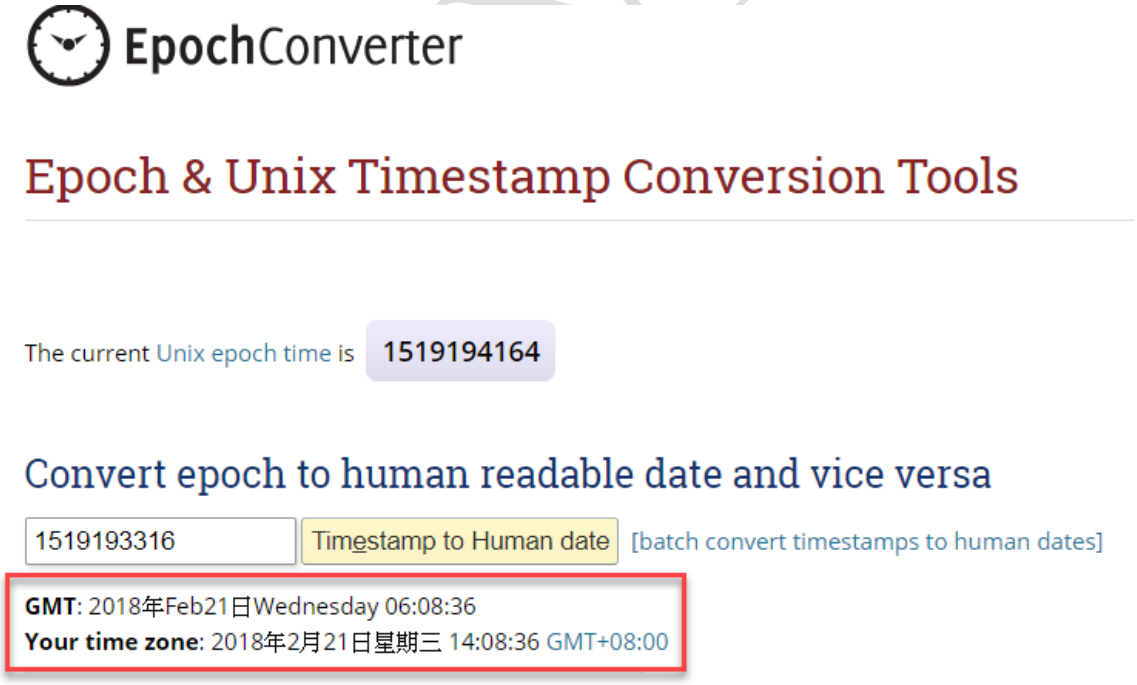

Figure 6. RTC after converted into GMT format.

Example converting website: https://www.epochconverter.com/