

CTVUE Application Note

Number:CTVUE-1009, Revision 1, 12/18/2007

Subject: Data Formatting

Introduction

The integrated Control Technique drivers attempt to make it as easy as possible to access drive data.

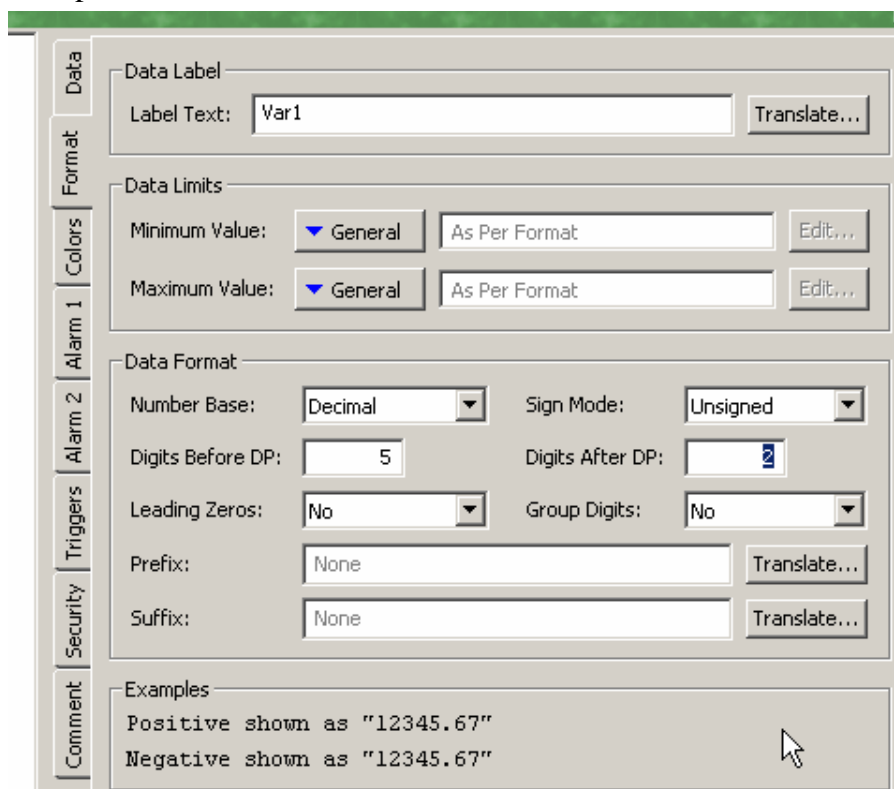
However, there are still a few steps that need to be taken to ensure your data is properly displayed in a readable format. These tasks include the following:

- 1) Number of Decimal Place Format
- 2) Unsigned or Signed Integer type data
- 3) Menu18-19 Double Word Swap

Number of Decimal Place Format

One of the reasons it is always suggested you use tags is because you can define how the data will look once and it will be used in that format throughout your entire application.

Once you define a tag and link it to your drive you will need to go under the format tab and set-up the number of decimal places you want before and after the decimal and also any +/- signage you may want. The below example, you will see 5 digits before and 2 digits after and it even shows you an example.



The screenshot shows the 'Data Format' tab in the CTVUE application. The 'Data Label' section shows 'Var1'. The 'Data Limits' section shows 'Minimum Value' and 'Maximum Value' both set to 'As Per Format'. The 'Data Format' section shows 'Number Base' set to 'Decimal', 'Sign Mode' set to 'Unsigned', 'Digits Before DP' set to '5', 'Digits After DP' set to '2', 'Leading Zeros' set to 'No', and 'Group Digits' set to 'No'. The 'Prefix' and 'Suffix' are both set to 'None'. The 'Examples' section shows 'Positive shown as "12345.67"' and 'Negative shown as "12345.67"'. A mouse cursor is pointing at the 'Negative shown as "12345.67"' text.

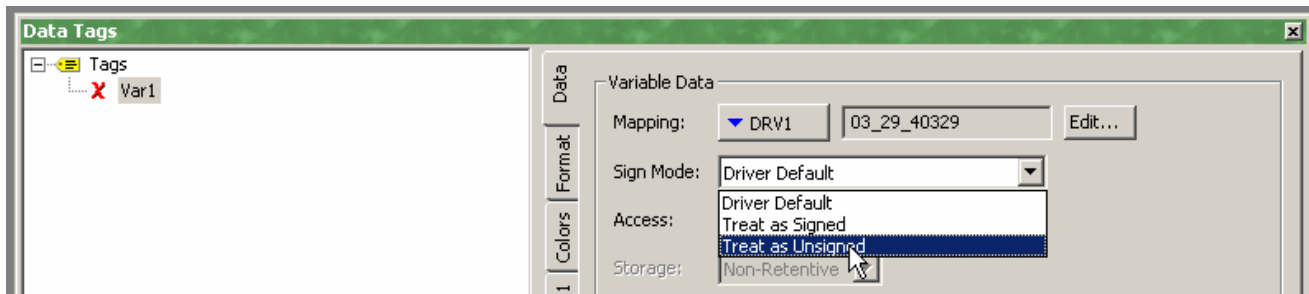
CTVUE Application Note

Number:CTVUE-1009, Revision 1, 12/18/2007

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Unsigned Integer or Signed Integer

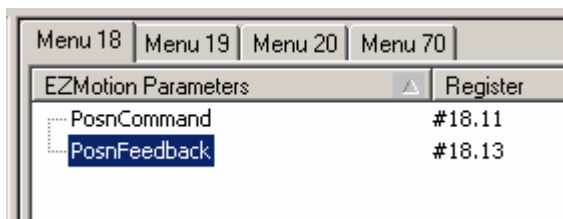
Certain kinds of data being read from the drive could be a signed integer or unsigned integer value. For example, say you are reading encoder position Menu 3 parameter 29 on the Unidrive SP. The default would be to read a 16 bit signed integer which would give you a value of -32767 to + 32767. However, you may want this to be an unsigned integer value of 0 to 65535. Therefore, to get this to display correctly, you need to select Sign Mode “Treat as Unsigned”.



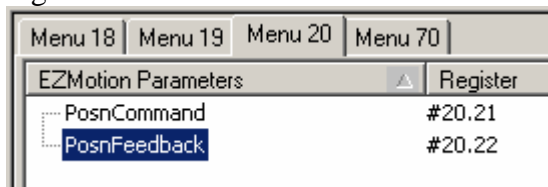
Menu18-20 Double Word Swap

You will mostly run into this problem when you are using the drag and drop Menu18-20 in the SM-EZ motion module. Since the EZ motion values are 32 bit, the drag and drop will occupy 2 x 16 bit Menu 18-20 registers. Unless you use the Menu20 32 bit registers in which case it will only use 1 x 32 bit register. See the below examples from PowerTools:

PositionCommand is menu 18.11 and menu 18.12 while PosnFeedback is 18.13 and 18.14



PositionCommand is Menu 20.21 and Position Feedback is Menu 20.22 because these are 32 bit registers on the Unidrive SP.



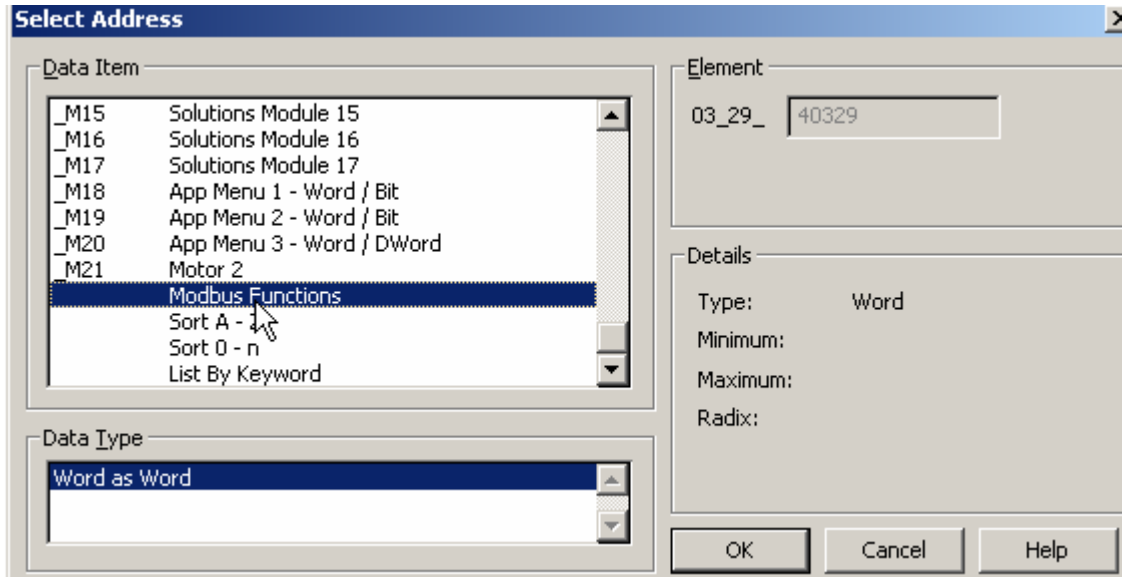
CTVUE Application Note

Number:CTVUE-1009, Revision 1, 12/18/2007

Subject: Data Formatting

In the case where you need to set-up the CTVue to access 2 x Menu18-20 parameters, you will need to use the “Modbus Functions” and then select type D4 and then you will have to select “Swap Words” from the Transform option.

Select Modbus Functions from SP selection



Select Address

Data Item

- _M15 Solutions Module 15
- _M16 Solutions Module 16
- _M17 Solutions Module 17
- _M18 App Menu 1 - Word / Bit
- _M19 App Menu 2 - Word / Bit
- _M20 App Menu 3 - Word / DWord
- _M21 Motor 2
- Modbus Functions**
- Sort A - n
- Sort 0 - n
- List By Keyword

Data Type

Word as Word

Element

03_29_ 40329

Details

Type: Word

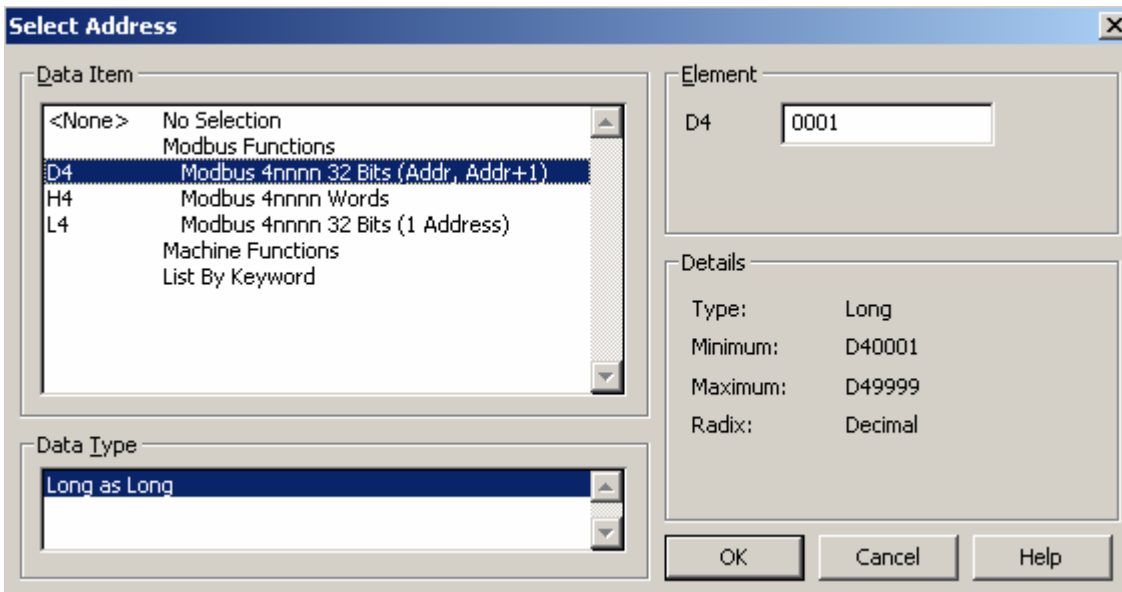
Minimum:

Maximum:

Radix:

OK Cancel Help

Select Type D4



Select Address

Data Item

- <None> No Selection
- Modbus Functions
- D4 Modbus 4nnnn 32 Bits (Addr, Addr+1)**
- H4 Modbus 4nnnn Words
- L4 Modbus 4nnnn 32 Bits (1 Address)
- Machine Functions
- List By Keyword

Data Type

Long as Long

Element

D4 0001

Details

Type: Long

Minimum: D40001

Maximum: D49999

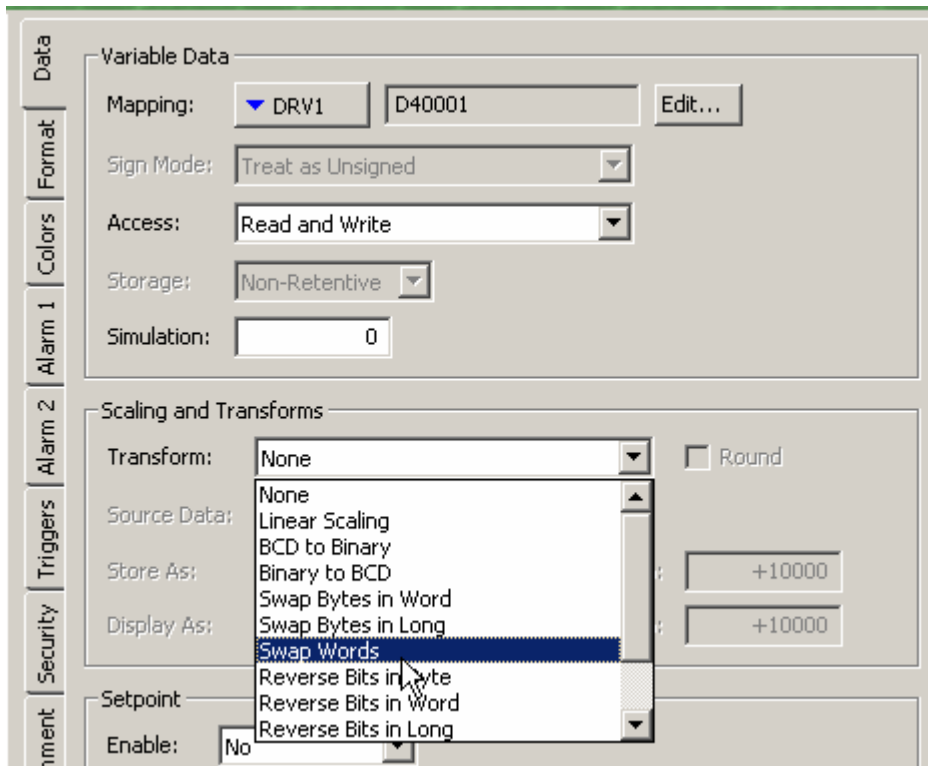
Radix: Decimal

OK Cancel Help

CTVUE Application Note

Number:CTVUE-1009, Revision 1, 12/18/2007
Subject: Data Formatting

Select Transform and Select Swap Words



The screenshot shows the 'Variable Data' and 'Scaling and Transforms' sections of the CTVUE application. The 'Variable Data' section includes fields for Mapping (DRV1), Sign Mode (Treat as Unsigned), Access (Read and Write), Storage (Non-Retentive), and Simulation (0). The 'Scaling and Transforms' section includes a Transform dropdown (None), a Source Data dropdown (open), a Store As dropdown (+10000), and a Display As dropdown (+10000). The 'Source Data' dropdown is open, showing options: None, Linear Scaling, BCD to Binary, Binary to BCD, Swap Bytes in Word, Swap Bytes in Long, Swap Words (highlighted), Reverse Bits in Byte, Reverse Bits in Word, and Reverse Bits in Long. The 'Store As' and 'Display As' dropdowns are also open, showing '+10000'.



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