My HMI software want to access to float values and long word values inside the I-8417/8817/8437/8837, 7188EG & 7188XG. How ?

Click the link for more ISaGRAF FAQ.

Ans: If you have the user's manual, please refer to section 4.2 – "Read/Write Word, Long Word & Float through Modbus". ISaGRAF user's manual can be download at http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

Modbus protocol provides function 3 & 4 for reading multiple words while function 6 and 16 to write words. Please refer to Chapter 5 for more information about the protocol.

The word defined in the Modbus protocol of I-84x7 and I-88x7, 7188EG & 7188XG controllers is like a signed short integer, which occupies 2 bytes and range from –32,768 (8000 in hexa.) to +32,767 (7FFF in hexa.). It is normally used to describe the behavior of analog I/O channels. For examples, the I-87017 I/O board (please refer to section 3.2)

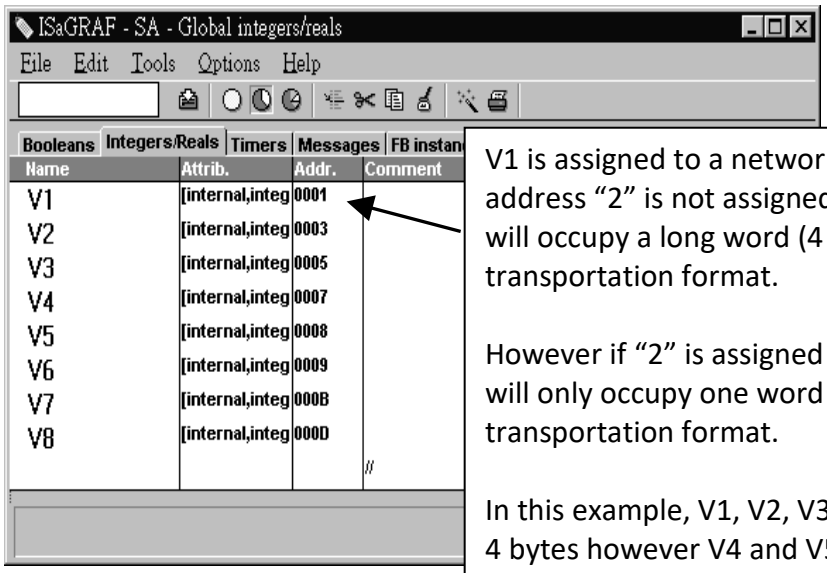
I-87017 :

Range ID (hexadecimal)	Electrical Range	Values on the channel (decimal)		
		-32768	0	+32767
8 (default)	± 10V	- 10V	0V	+ 10V
9	± 5V	- 5V	0V	+ 5V
A	± 1V	- 1V	0V	+ 1V
B	± 500mV	- 500mV	0mV	+ 500mV
C	± 150mV	- 150mV	0mV	+ 150mV
D	± 20mA	- 20mA	0mA	+ 20mA

The long word defined in the Modbus protocol of I-84x7 and I-88x77, 7188EG & 7188XG controllers is like a signed long integer, which occupies 4 bytes and range from -2,147,483,648 (8000 0000 in hexa.) to +2,147,483,647 (7FFF FFFF in hexa.). It is normally used to describe the value of internal integer variables declared on ISaGRAF workbench.

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All integer variables declared on ISaGRAF are signed 32-bit format however the integer variable, which assigned with a network address will only, occupies 1 word (2 bytes) in the Modbus transportation format. Since a long word occupies 2 words (4 bytes), to Read/Write long word through Modbus, the network address assigned to the integer variable has to be followed as below.

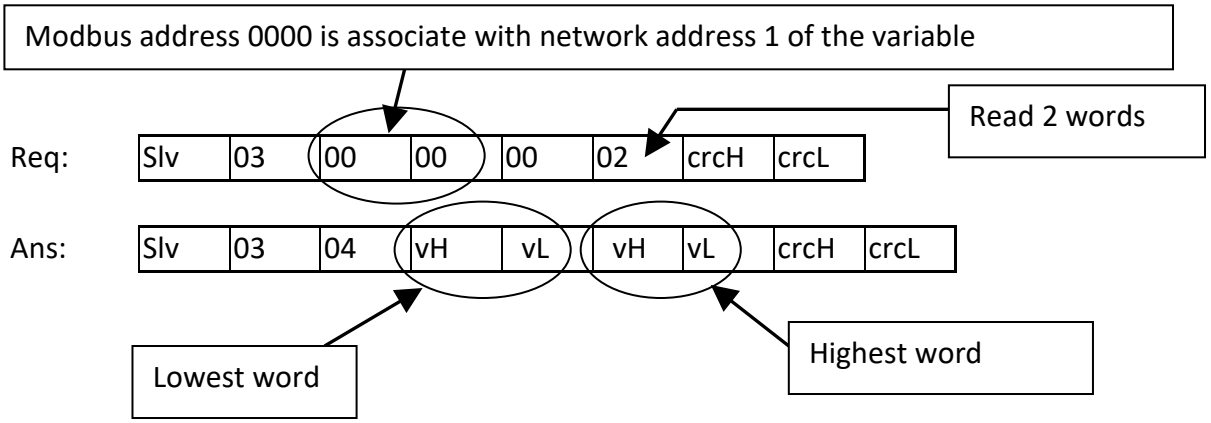


V1 is assigned to a network address “1”. If the network address “2” is not assigned to any other variable, V1 will occupy a long word (4 bytes) in the Modbus transportation format.

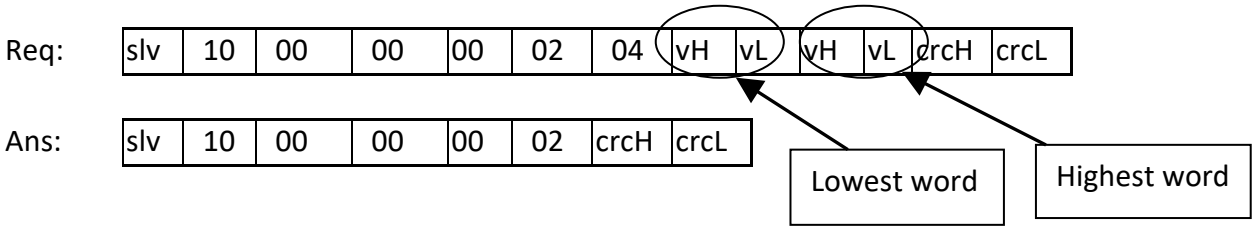
However if “2” is assigned to one another variable, V1 will only occupy one word (2 bytes) in the Modbus transportation format.

In this example, V1, V2, V3, V6, V7 and V8 will occupy 4 bytes however V4 and V5 only occupy 1 word (Lowest word) in the Modbus transportation formate.

To read long word value of V1 is to read 2 words by using Modbus function 3 or 4.
(please refer to section 5.1).

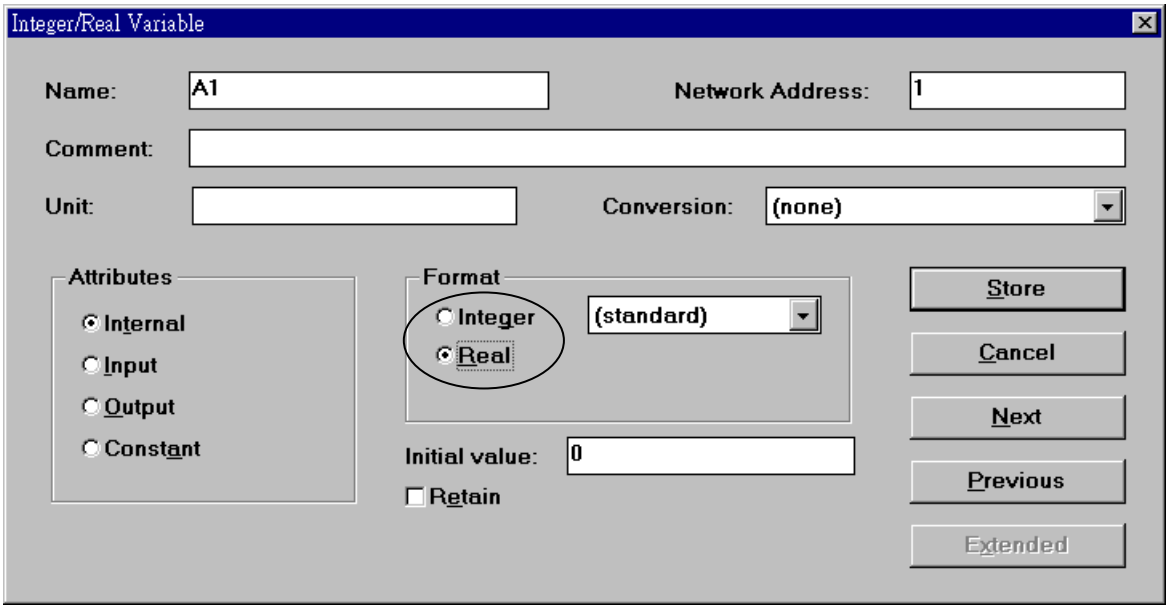


To write long word to V1 is to write 2 words by using Modbus function 16.



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To read / write float (4 bytes) is very similar to read / write long word. The difference is the variable should be declared as “Real” type, and the next network address No. should not be assigned to any other variable.



There are much available HMI softwares from the market. You don’t need to care about the Modbus protocol format. Just be careful to assign the correct network address on ISaGRAF.

Click the link for more ISaGRAF FAQ:
http://www.icpdas.com/en/faq/index.php?kind=280#751

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