

---

# APPLICATION NOTE

**AN0103**

## Modbus modules: implementation info

Rev. 1.0 05/2012

### Relevant for:

This application note applies to modules which supports Modbus RTU protocol, and describes how the address and baud rate can be changed via Modbus.

### Introduction:

This application note provides support in setting slave address and baud rate individually. Furthermore it shows the data encoding of floating point values and which Modbus function codes are supported by the module.

## 1 Data encoding of float values

The Modbus standard doesn't define a fixed word order for communicating greater 16 bit values like floating point values (32 Bit).

### 1.1 IEEE 754 format

The IEEE standard defines the usual description of floating point values:

SEEEEEEE	EMMMMMMM	MMMMMMMM	MMMMMMMM
Byte 1	Byte 2	Byte 3	Byte 4

S- Sign  
 E- Exponent  
 M- 23 Bit Mantissa

### 1.2 Modbus floating point format

The module uses the modbus floating point format. This means that the byte pairs 1, 2 and 3, 4 are inverted.

Modbus-protocol-address x

Modbus-protocol-address x+1

MMMMMMMM	MMMMMMMM	SEEEEEEE	EMMMMMMM
Byte 3	Byte 4	Byte 1	Byte 2

## 2 Supported function codes

Following function codes can be supported by modules:

- 0x04 Read Input Registers
- 0x03 Read Holding Registers
- 0x06 Write Single Register

The measurement values can be read by way of 0x03 and 0x04 codes. The register numbers of values are listened in the product datasheet.

## 3 Setting a new Slave ID

If the module supports changing the slave id via Modbus protocol, the new Slave ID can be set via 0x06 function code and in the range of 1 to 247.

Address	Function code	Register address		Register Value		CRC	CRC
		HB	LB	HB	LB		
XX	06	00	00	00	YY	CC	CC

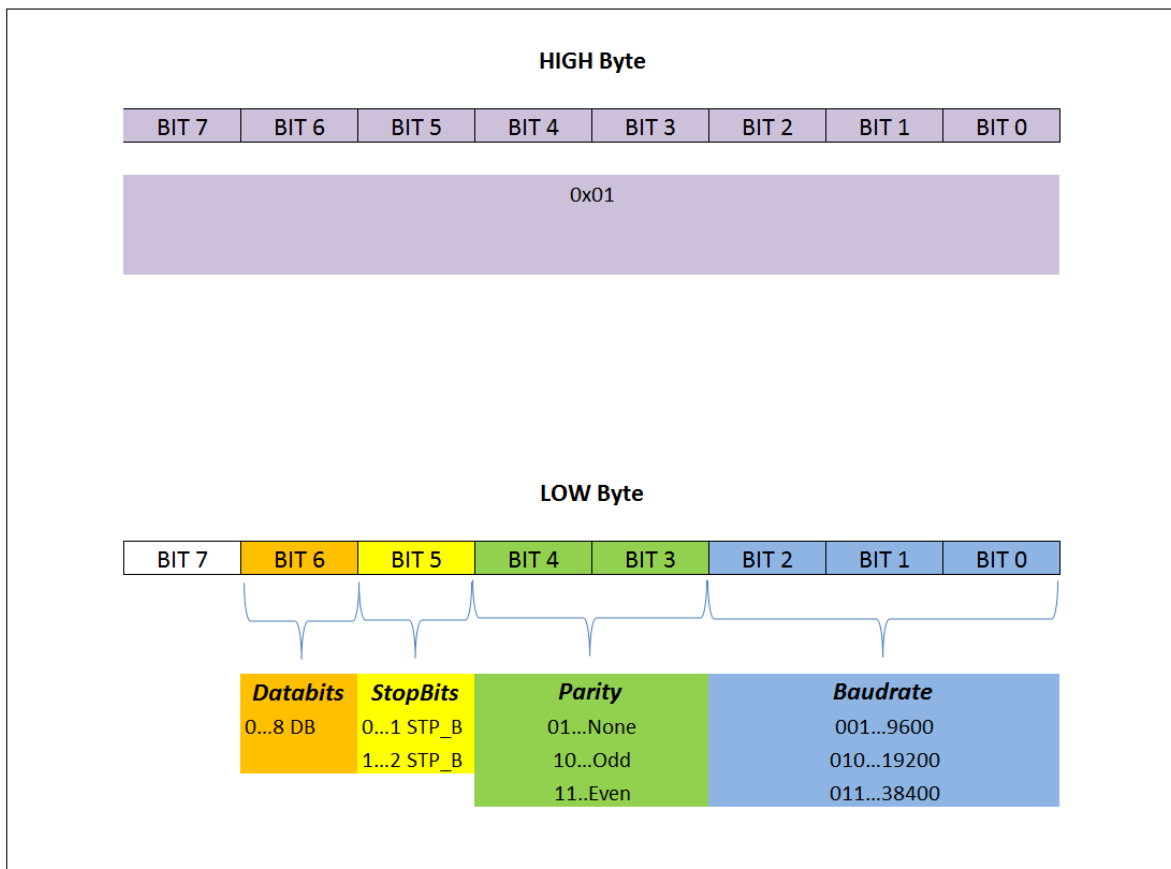
XX...current address  
 YY...new address(1-247)

## 4 Changing the baud rate

The baud rate, parity and stop bit can also be changed via the 0x06 function code. Supported baud rates are for example:

- 9600
- 19200
- 38400

Address	Function code	Register address		Register Value		CRC	CRC
		HB	LB	HB	LB		
XX	06	00	01	01	YY	CC	CC



Register value for changing communication settings.

**The register of slave id and baud rate can't be read by any function code!**

## Contact information

**E+E Elektronik Ges.m.b.H.**

Langwiesen 7  
A-4209 Engerwitzdorf  
Austria

Tel.: +43 7235 605 0

Fax.: +43 7235 605 8

E-Mail: [info@epluse.com](mailto:info@epluse.com)

Homepage: [www.epluse.com](http://www.epluse.com)

For your local contact, please view homepage.

The information in this document is believed to be accurate in all respects at the time of publication but is subject to change without notice. E+E Elektronik assumes no responsibility for errors and omissions, and shall not accept responsibility for any consequences resulting from the use of information included herein. Additionally, E+E Elektronik assumes no responsibility for the functioning of features or parameters not described. E+E Elektronik reserves the right to make changes without further notice. E+E Elektronik makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does E+E Elektronik assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including consequential or incidental damages without limitation. E+E Elektronik products are not designed, intended, or authorised for use in applications intended to support or sustain life, or for any other application in which the failure of the E+E Elektronik product could create a situation where personal injury or death may occur. Should the buyer purchase or use E+E Elektronik products for any such unintended or unauthorised application, the buyer shall indemnify and hold E+E Elektronik harmless against all claims and damages.