NFO®
Sinus

User Manual Appendix: NFO Sinus with ModBus RTU option

NFO DRIVES

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1 Preface

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2 Introduction of Modbus RTU

Modbus RTU is a fieldbus system from the company Modicon, a part of the Schneider Automation.

2.1 Specifications

The media for the fieldbus is a copper cable composed of one twisted pair. The baudrate is as standard 19200 Bit/s but can be modified on the card between 1200 Bit/s to 50 000 Bit/s. The Modbus RTU network can consist of 247 slaves but only one Master. The master always initiates the communication with a question (called a query) and the slave with the right slave address answers the question with a response.

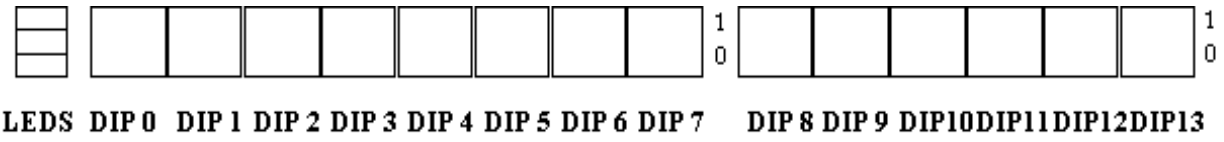
2.2 Setup and control

Data consists of two 16 bit output registers and two 16 bit input registers. Output register 1 is the control word and output register 2 is the frequency setpoint. Input register 1 is the status word and input register 2 is the actual rotor frequency. The content of the registers are explained in detail in the NFO Sinus Fieldbus User manual, chapter 4.

3 Configuration and indication

3.1 Dip switches on card

3.1.1 Configuration switches



The figure above shows the dip switches on the ModBus RTU module. 'ON' is 'logic zero' and 'OFF' is 'logic one'.

Function:	Dip value:	Set value:	Function of set value:
The electrical communication mode	Dip 0	0	RS485
		1	RS232
Sets the slave address of the module	Dip 1 - Dip 8	MSB - LSB	Valid slave addresses are 1 – 247. Addresses outside this range should not be used
Sets the baudrate of the module	Dip 9 / Dip 10 / Dip 11	000	1200
		001	2400
		010	4800
		011	9600
		100	19200
		101	38400
		110	50000
		111	Not supported
Sets the parity mode of the module	Dip 12 / Dip13	00	None
		01	Odd
		10	Even
		11	Not used

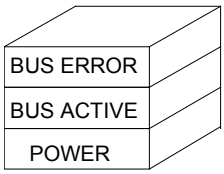
The table above shows the configuration settings on the dip switches.

3.1.2 Termination

When terminating RS485 you have to set the blue dip switch located to the left of the leds to on. This is only required when the slave acts as the last slave on the bus and this will prevent an echo of the signal to propagate back on the bus.

3.2 Led indicator on card

The figure below shows how the LEDs are placed on the ModBus RTU module.



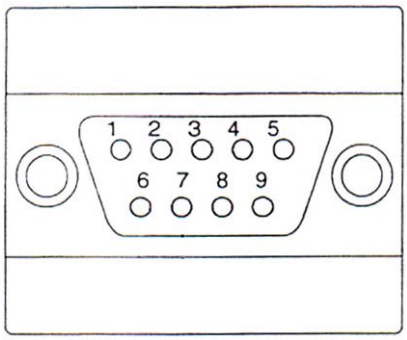
The table below shows the function of the LED indicators.

- Bus error LED0 Red
- Bus activeLED1 Green
- Power LED2 Green
- Watchdog LED3 Bicolor (mounted on top of ModBus RTU module)

Turned off	Power off
Flashing green (2 Hz)	Module init.
Flashing green (1 Hz)	Normal operation
Flashing red (4 Hz)	Dpram fault
Flashing red (2 Hz)	Rom fault
Flashing red (1 Hz)	Ram fault
Orange	Not allowed

4 Fieldbus connector

The picture and table below shows the pin function of the fieldbus connector.



Dsub:	Function:
1	DE [RS485]
2	RS232 - RX
3	RS232 - TX
4	+ 5V Bus
5	Ground Bus
6	RS485 A-line
7	RS485 B-line
8	Not used
9	Not used
PE	Shield