## Index

1. Introduction and settings

This user manual explains how to read (request) and write (send) the data of the PRO1-Mb and PRO380-Mb in Commix 1.4. To communicate with the M-bus meter you need:

- Commix 1.4
- Inepro PRO1 and PRO380 M-bus register files
- M-bus to USB converter
- HEX to decimal converter (www.binaryhexconverter.com)

Connect the meter
1. Connect the meter to a power supply
2. Connect input A (+) and B (-) to the M-bus to USB converter
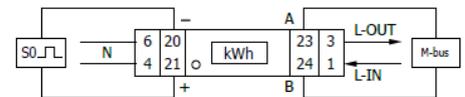3. Connect the USB converter to the PC
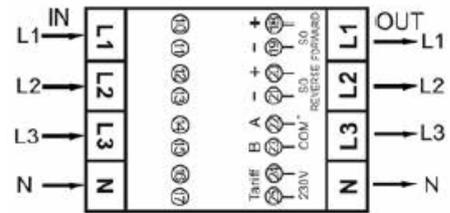
Settings
Start commix 1.4
- Select the COM port   - Databits: 8
- Baud rate: 9600 (default)   - Parity: Even (default)
- Stop bits: 1   - Select Input HEX and Show HEX

Click on no CRC and choose SUM to send a command or request without calculation of the checksum (chapter 3). This field is not selected (no CRC) when you want to send a command or request with calculation of the checksum (chapter 2). Click on 'open port' to start.

Address

0 = default primary address after manufacture

1-250 = primary address, setup via software

251/252 = unused

253 (FD) = secondary address (chapter 4)

254 (FE) = broadcast primary address

255 (FF) = broadcast without reply

Reset all communication values

This procedure serves to start up after the interruption or beginning of communication. The command 'SND_NKE' is: 10 40 (address) (checksum) 16. The slave responds to a correctly received SND_NKE with an acknowledgment consisting of a single character (E5).

Response

RSP_UD is the data transfer from the slave to the master after the request. The reply is always E5 unless it sends back data. The received data (RSP_UD) is explained in the Inepro PRO1 and PRO380 M-bus register files (http://ineprometering.com/manuals/new).

2. Request data (read)

Use the following three commands to request data from the PRO1-Mb and PRO380-Mb:

REQ_UD2:   10 (5B or 7B) (address) (checksum) 16

EEPROM contents: 68 03 03 68 (53 or 73) (address) B4 (checksum) 16

RAM contents: 68 03 03 68 (53 or 73) (address) B1 (checksum) 16

The checksum is calculated by counting together all the bytes from the 0x10 to the checksum in short messages or from the second 0x68 to the checksum in long messages:
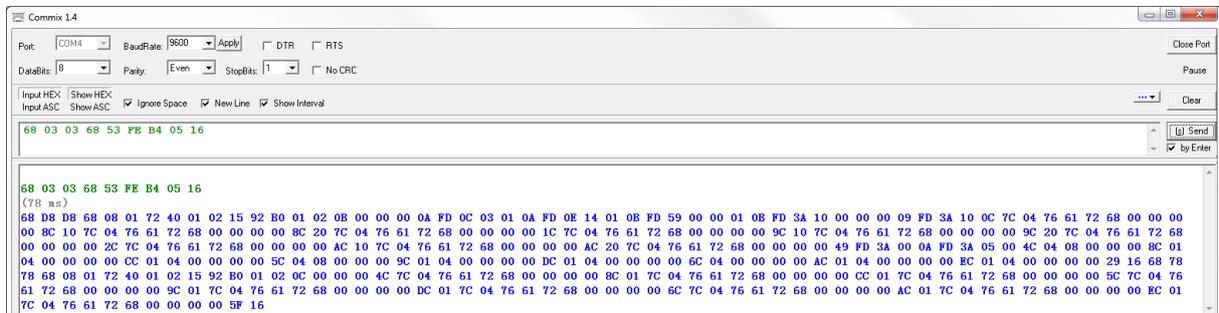
REQ_UD2: 10 5B FE (checksum) 16

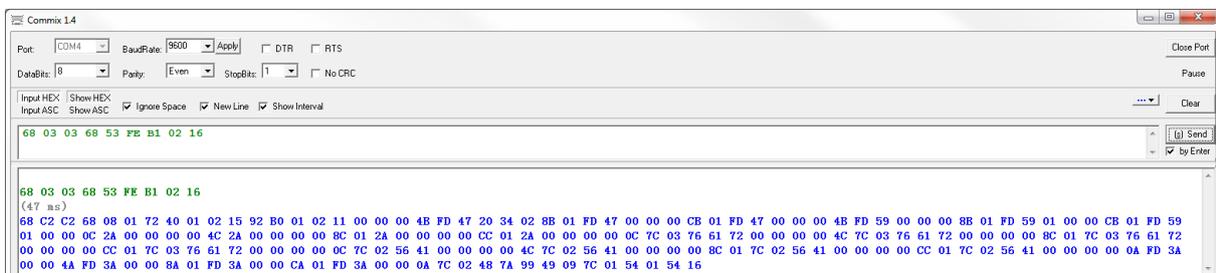Checksum is 5B+FE = 91+254 = 345 → convert to HEX = 159 = **59**
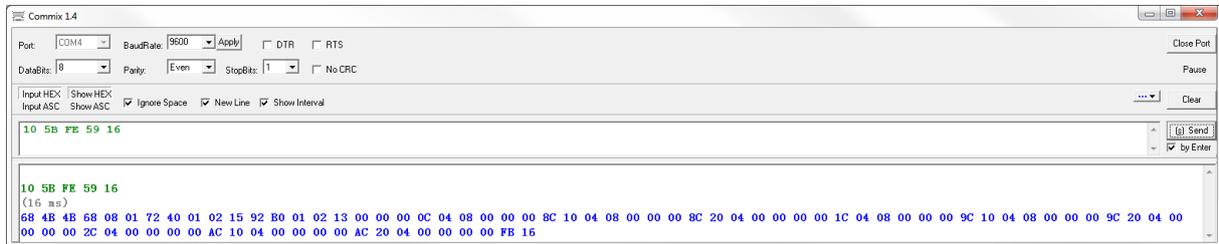
EEPROM read: 68 03 03 68 53 FE B4 (checksum) 16

Checksum is 53+FE+B4 = 83+254+180 = 517 → convert to hex = 205 = **05**

Request readout of complete RAM content: 68 03 03 68 53 FE B1 (checksum) 16

Checksum is 53+FE+B1 = 83+254+180 = 514 = 202 = **02**

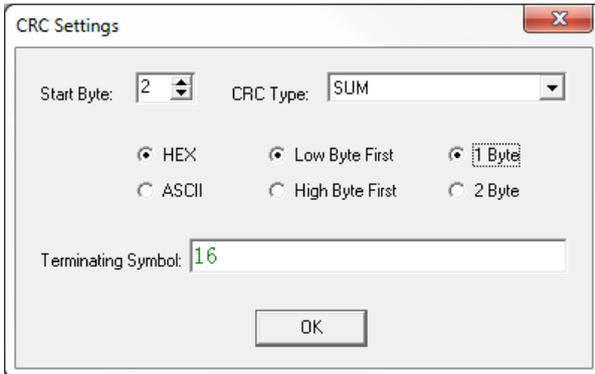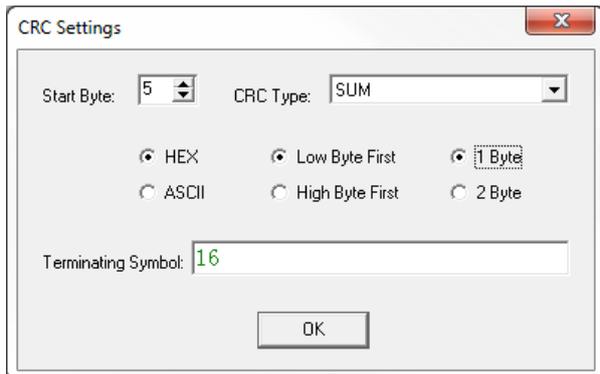You can also request data using the CRC settings to calculate the checksum. Instead of calculating the checksum we use the CRC setting SUM with 2 or 5 startbytes and terminating symbol 16. Click on No CRC to open the CRC settings select the following settings:
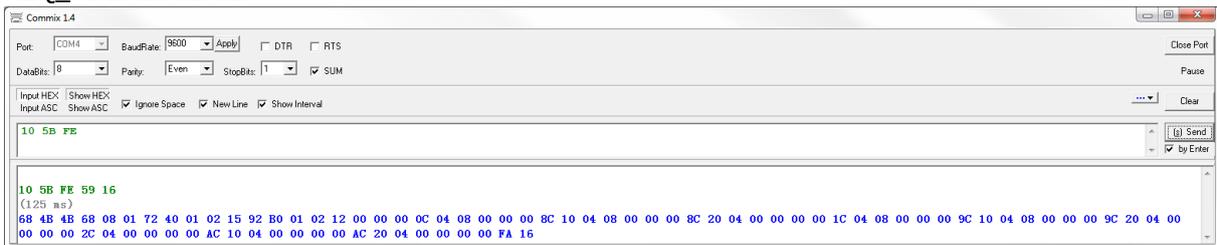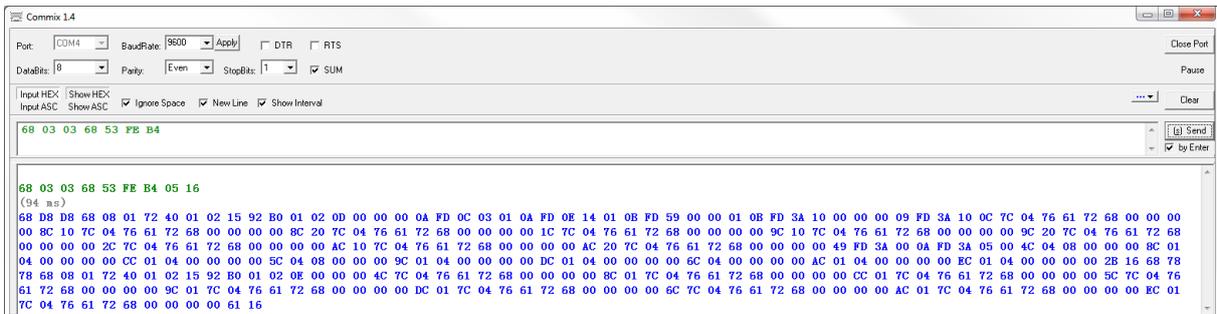
10 (5B or 7B) (address):   68 03 03 68 (53 or 73) (address) B4/B1:
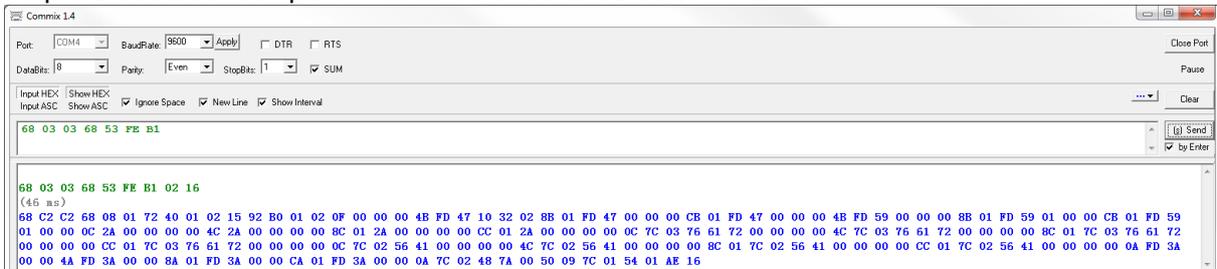

REQ_UD2: 10 5B FE

EEPROM read: 68 03 03 68 53 FE B4

Request readout of complete RAM content: 68 03 03 68 53 FE B1

3. Send data (write)

New data can be transferred to the meter by sending a SND_UD command. With this procedure the master transfers user data to the slave. The slave will confirm the correct receipt of data with a single character acknowledge (E5).

Change baud rate
68 03 03 68 (53 or 73) (address) (baudratenumber) (checksum) 16
(Baudratenumber B8=300, B9=600, BA=1200, BB=2400, BC=4800, BD=9600)

Change primary address
68 06 06 68 (53 or 73) (old/current address) 51 01 7A (new address) (checksum) 16

Change secondary address
68 09 09 68 (53 or 73) (address) 51 0C 79 aa aa aa aa (checksum) 16

Change tariff mode
68 08 08 68 (53 or 73) (address) 51 09 7C 01 54 (new tariff mode same as read) (checksum) 16
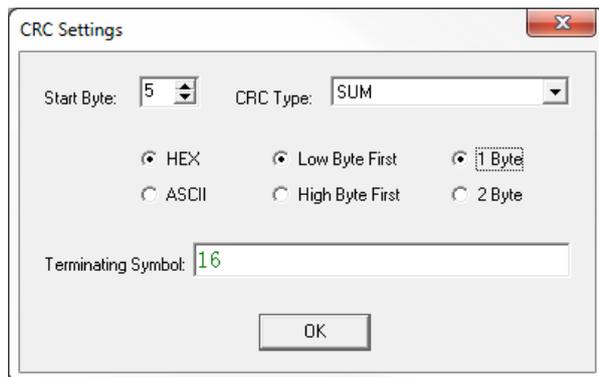
Change combined code
68 07 07 68 (53 or 73) (address) 51 09 FD 3A (new code, same as read) (checksum) 16

Change S0 rate
68 0A 0A 68 (53 or 73) (address) 51 0B FD 3A (new s0 rate, 00 00 10 00 = 1000) (checksum) 16

Reset resettable counter (1P only)
68 09 09 68 (53 or 73) (address) 51 0C 04 (4 byte value) (checksum) 16

Use the CRC settings from the first screenshot, or calculate the checksum as explained in chapter 2 to send the command. Use the primary or secondary address to send a command to the meter. The second screenshot is an example of how to change the baud rate. It is not possible to use the broadcast ID (FE) to send a command to the single phase meters.

4. Selecting slave by secondary addressing

It is possible to request and send data by selecting the meter on its secondary address. This is based on the serial number, everything happens over address 253 (FD). When the meter is selected it will work like a normal meter on address 253.
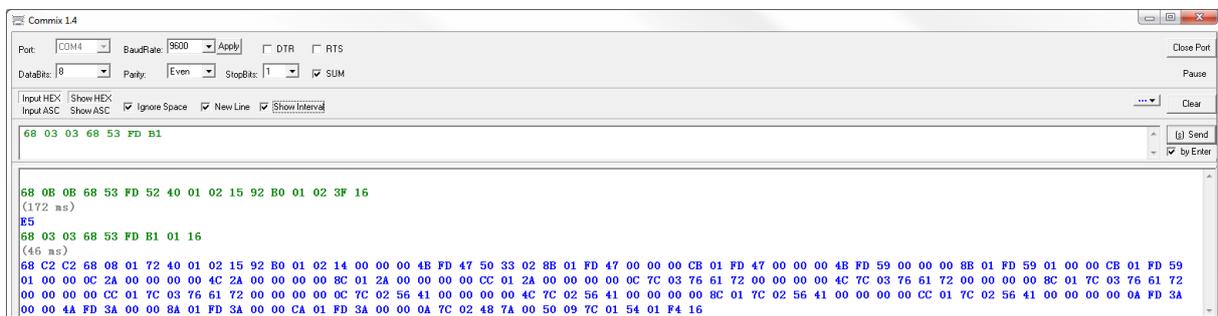
To select:

Command: 68 0B 0B 68 53 FD 52 aa aa aa aa bb bb cc dd (checksum) 16
- The first 4 bytes 'aa' are the serial number
  The bytes are in reverse order, so a serial number of '15020140' would be '40 01 02 15'
- The bb bytes are the manufacturer id. 0x92 0xB0
- The cc bytes is the generation 'version' of the product, the same as the mayor version of the software.
- The dd bytes is the Medium, this is always 0x02, for electricity.

Use the following CRC settings or calculate the checksum as explained in chapter 2 to give the command:
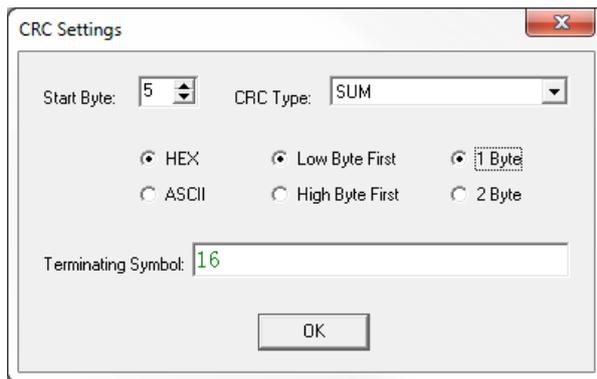
The meter will respond E5 if the command is correct. You can now send a read/request or write/send command to the meter using the secondary address (FD):