EM configuration tools

Manual

Foreword

Revision History

Version	Date	Change
0	2021.3.9	First edition

Copyright

Contents

Applications

EM configuration tools is designed for the configuration of measurement devices. EM configuration tools currently supports the following measurement devices made by Weidmüller Interface GmbH & Co. KG:

- EM111-RTU-2P
- EM110-RTU-2P
- EM122-RTU-2P
- EM120-RTU-2P
- EM220-RTU-4DI2DO
- EM220-RTU-4DI2DO-GW

Supported operating systems

EM configuration tools can be installed on computers/PCs with the following operating systems:

- Windows 7® (32Bit, 64Bit)
- Windows 10® (32Bit, 64Bit)

Connection

The following connection types are available for selection, according to device type:

- RS485/RS232
- TCP/IP

An interface converter is required to be able to connect the devices to the PCs RS232 interface and to be able to configure it and read it with EM configuration tools. Devices, which should communicate via Modbus, can be activated via this connection. Interface, baud rate and Modbus ID must be known.

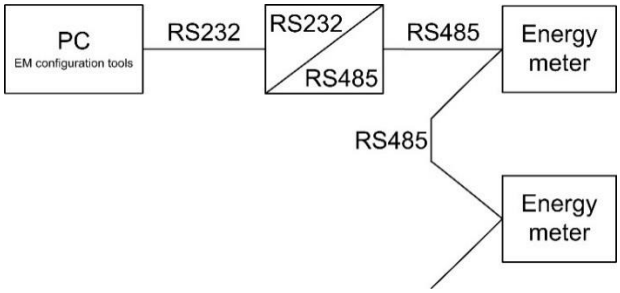


Fig: RS485/RS232 connection

NOTE: The baud rate, data bits, parity and stop bits should be the same in the bus and the Modbus ID should be unique.

Devices with an Ethernet interface and known Ethernet address can be integrated via the connection type “TCP/IP” in EM configuration tools.

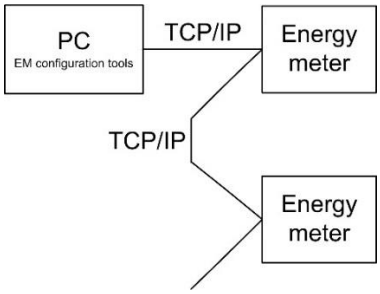


Fig: TCP/IP connection

NOTE: Only EM220-RTU-4DI2DO-GW support TCP/IP connection. The port number should be the same in the bus and the IP address and Modbus ID should be unique.

A gateway is required to be able to connect the devices via Ethernet to the PC and to be able to configure it and read it with EM configuration tools. Devices that are connected via the RS485 as slave to a master device are activated via this connection type. In the process the TCP/IP address of the master and the device address of the slave device are to be transferred to the settings. Energy meter EM220-RTU-4DI2DO-GW could work as a gateway.

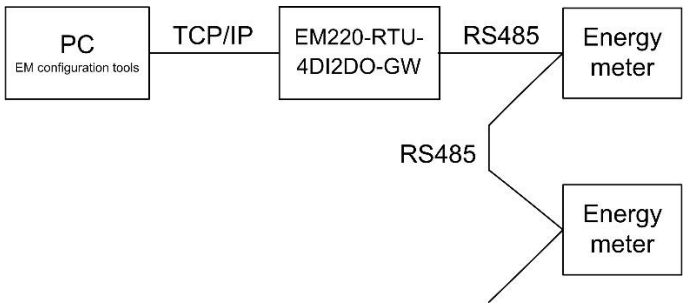


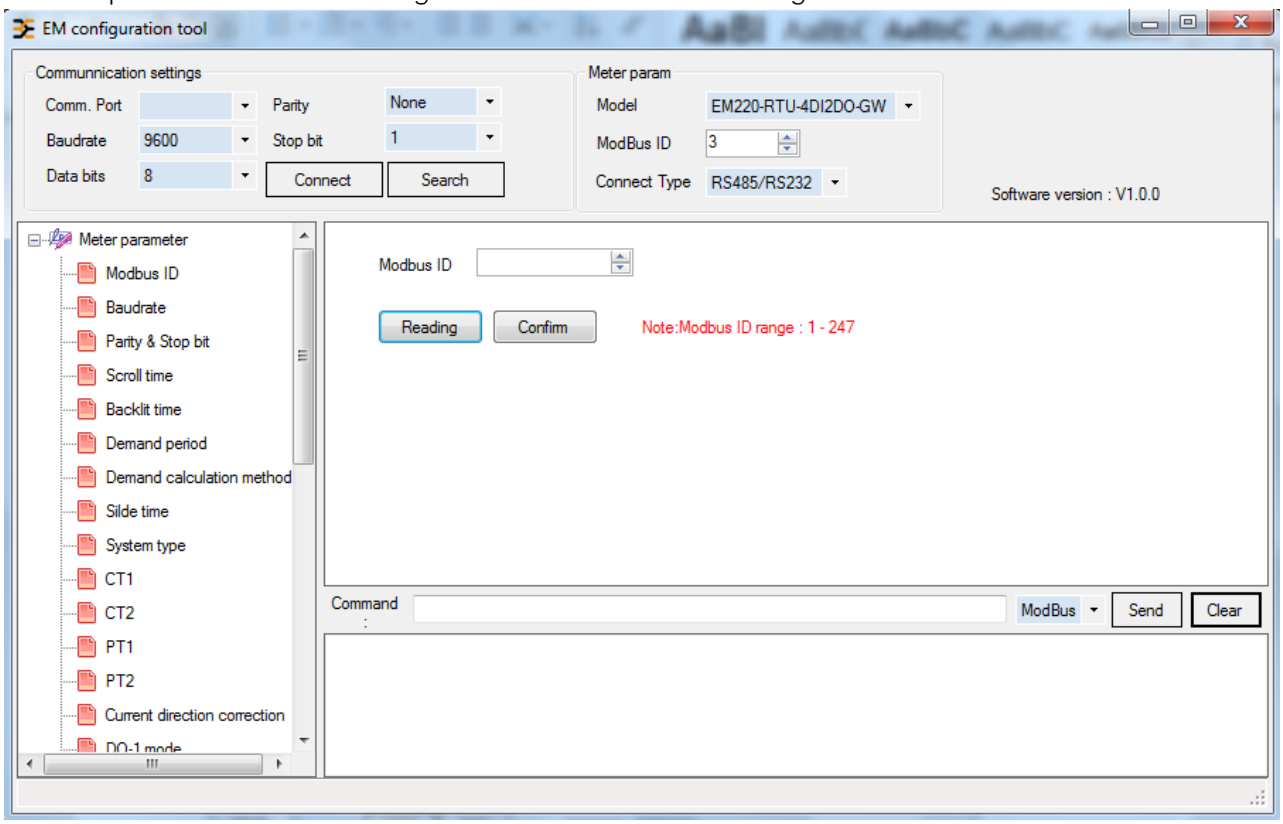
Fig: TCP/IP connection by gateway

Note: The EM220-RTU-4DI2DO-GW is used as a gateway with which to connect RS485 devices (e.g. EM220-RTU-4DI2DO). The Energy Meter EM220-RTU-4DI2DO-GW is the Modbus master (RS485) and the Energy Meter EM220-RTU-4DI2DO the Modbus slave, whereby the baud rate, data bits, parity and stop bits to be set for both devices must concur. Ethernet mode should be set to 'MAST' by buttons in panel or Gateway mode should be set to 'ON' by EM configuration tools before EM220-RTU-4DI2DO-GW is used as a gateway, the Modbus ID will be coerced into 255.

Working with EM configuration toos

Overview Window

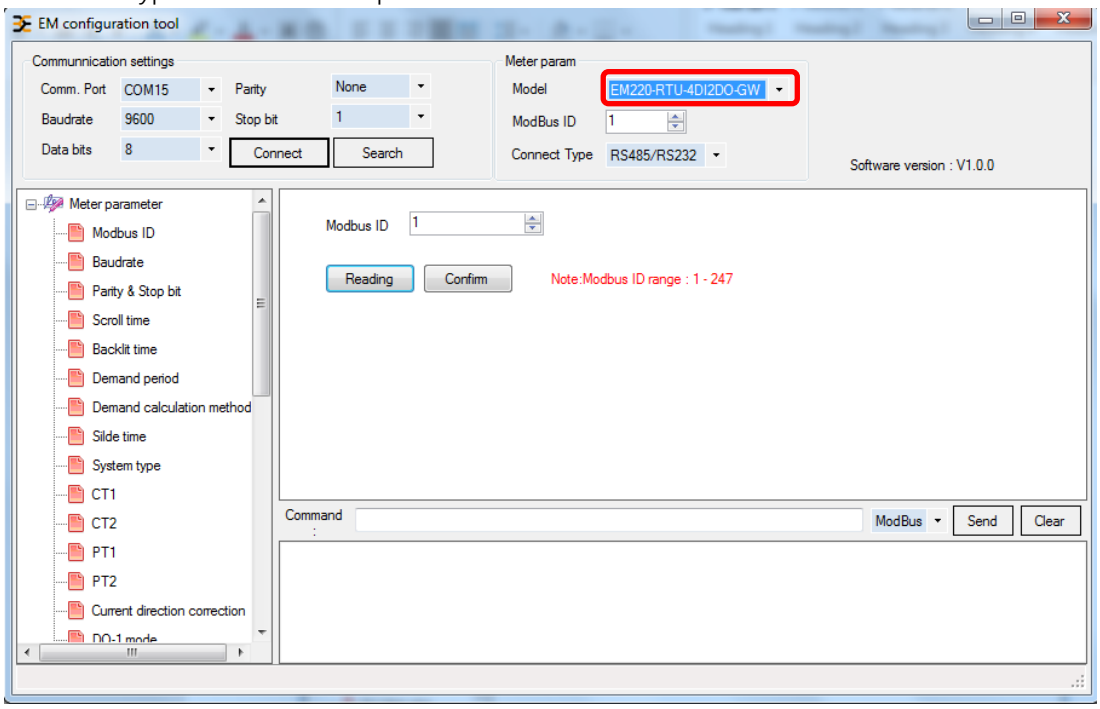
The complete window of EM configuration tools is shown in the figure below.



Meter setting

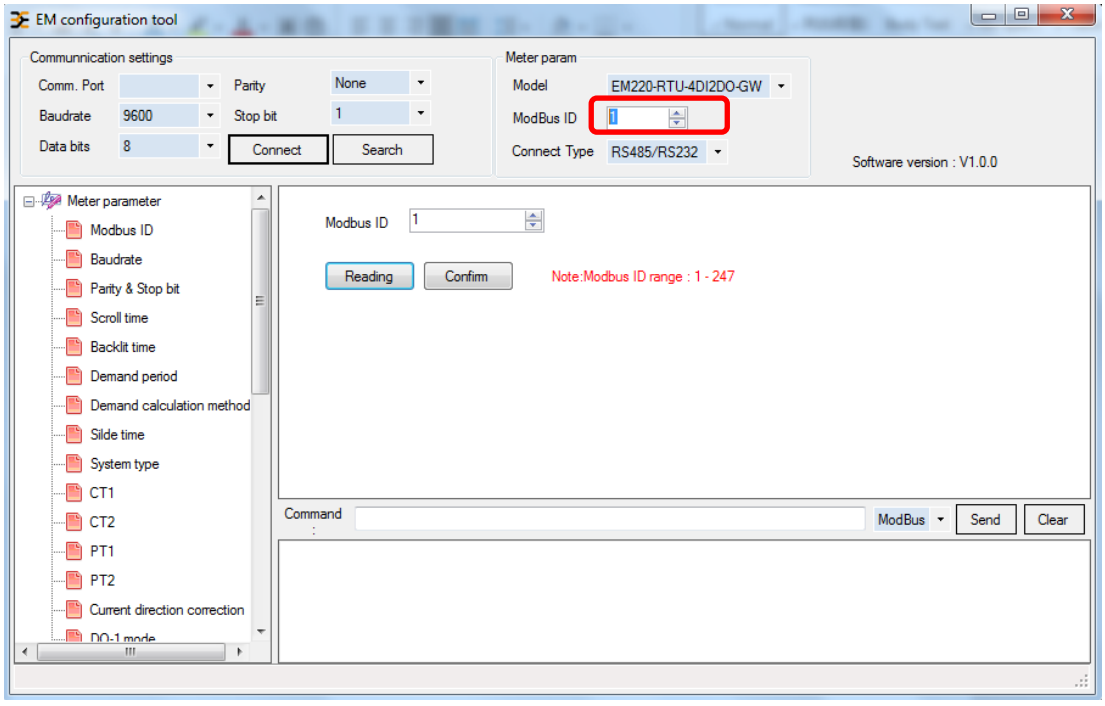
Model selecting

Select the type of device in drop-down list of 'Model'.



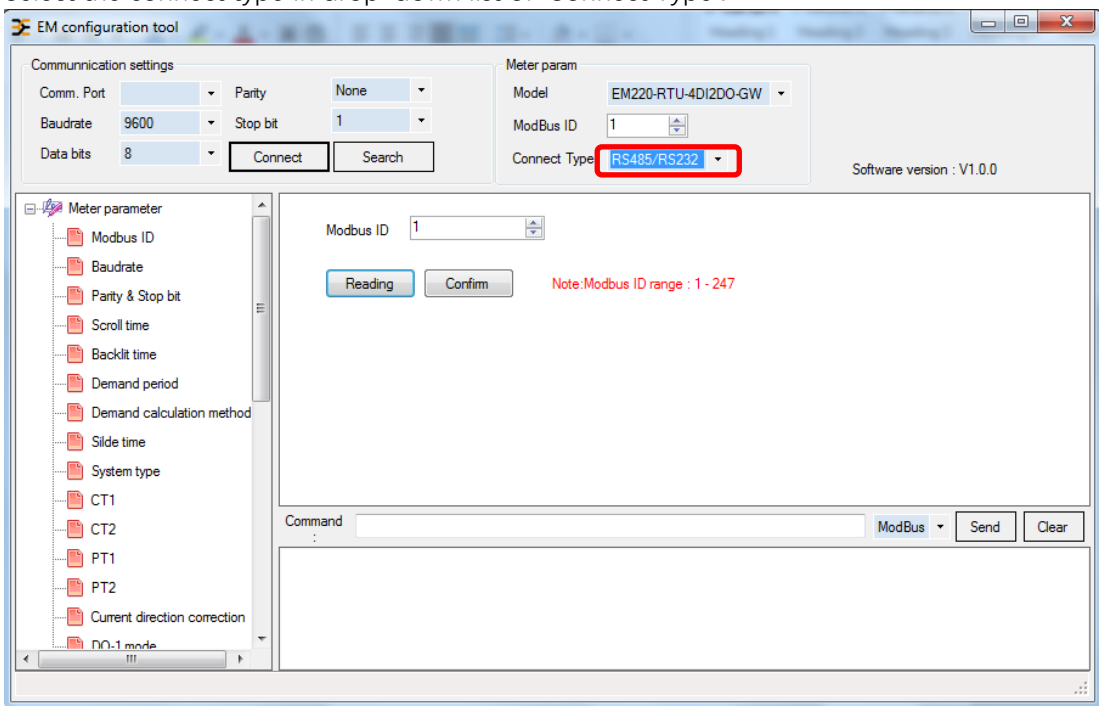
Modbus ID setting

Enter ID number in 'Modbus ID'.



Connect type selecting

Select the connect type in drop-down list of ‘Connect Type’.



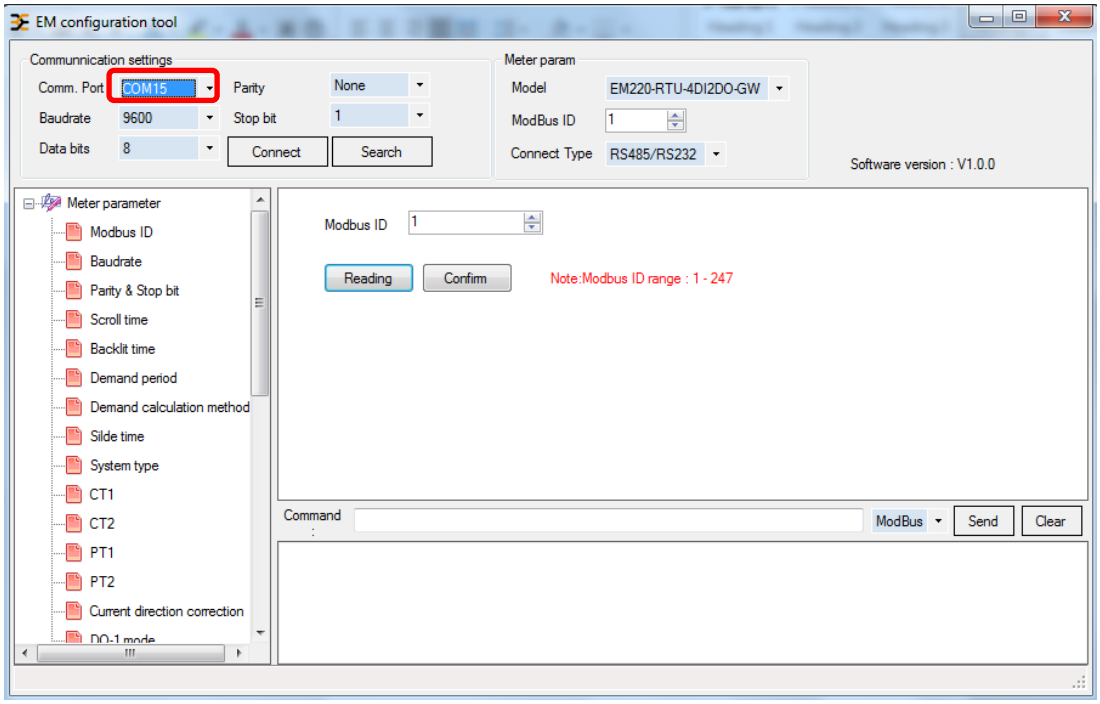
Communication setting

RS232/RS485 communication setting

communication setting

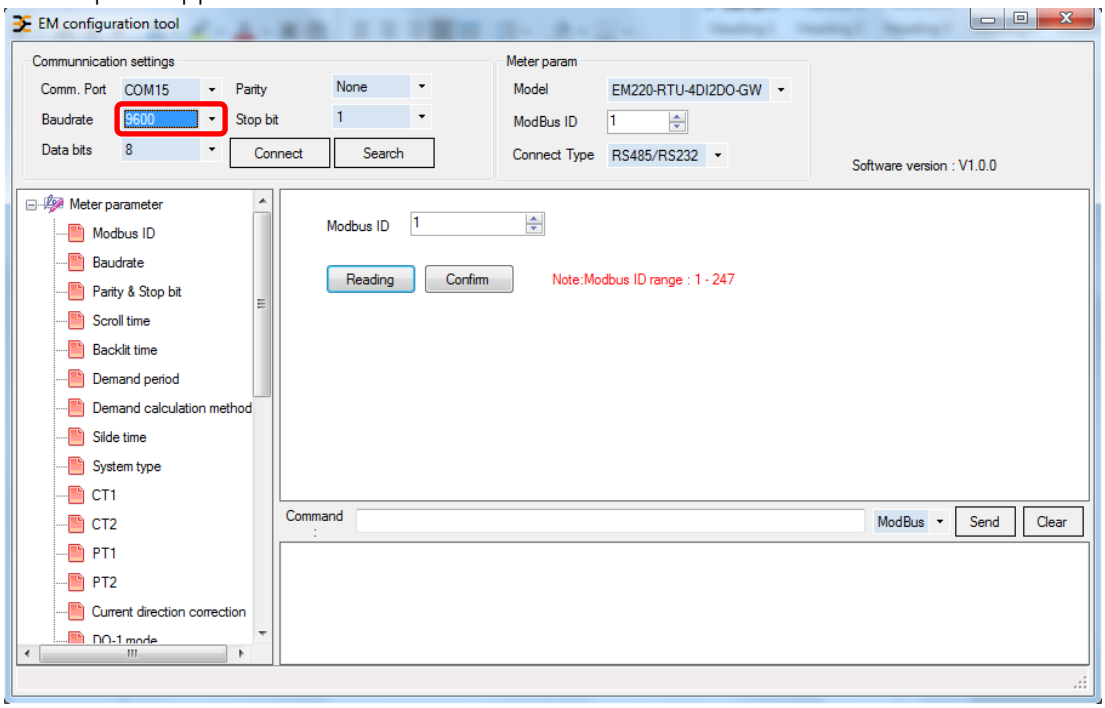
Comm. port selecting

Select the communication in drop-down list of ‘Comm. Port’. If the drop-down list is empty, the connection failed.



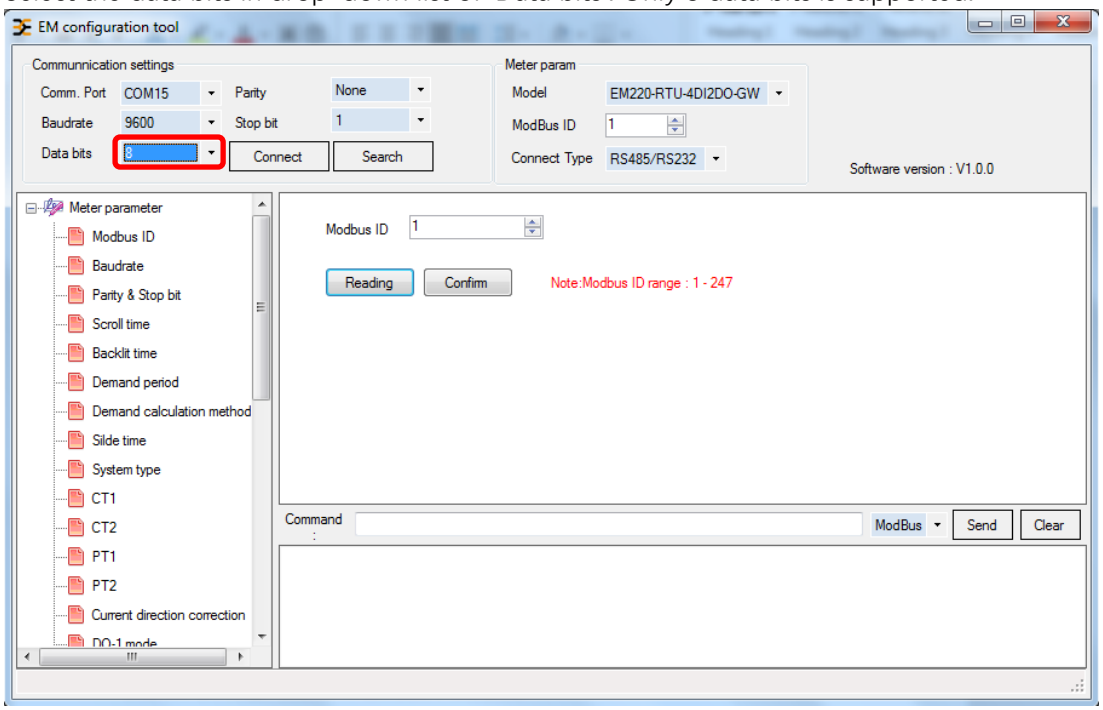
Baud rate selecting

Select the baud rate in drop-down list of 'Baudrate'. 1200bps，2400bps，4800bps，9600bps，19200bps，38400bps is supported.



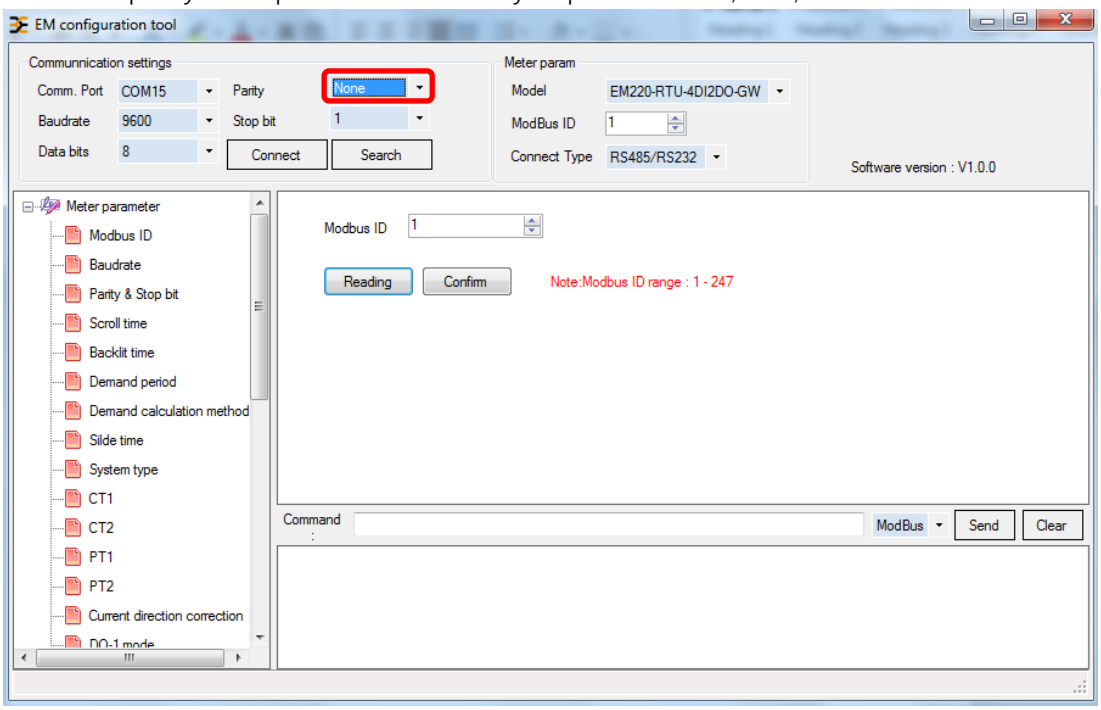
Data bits selecting

Select the data bits in drop-down list of 'Data bits'. Only 8 data bits is supported.



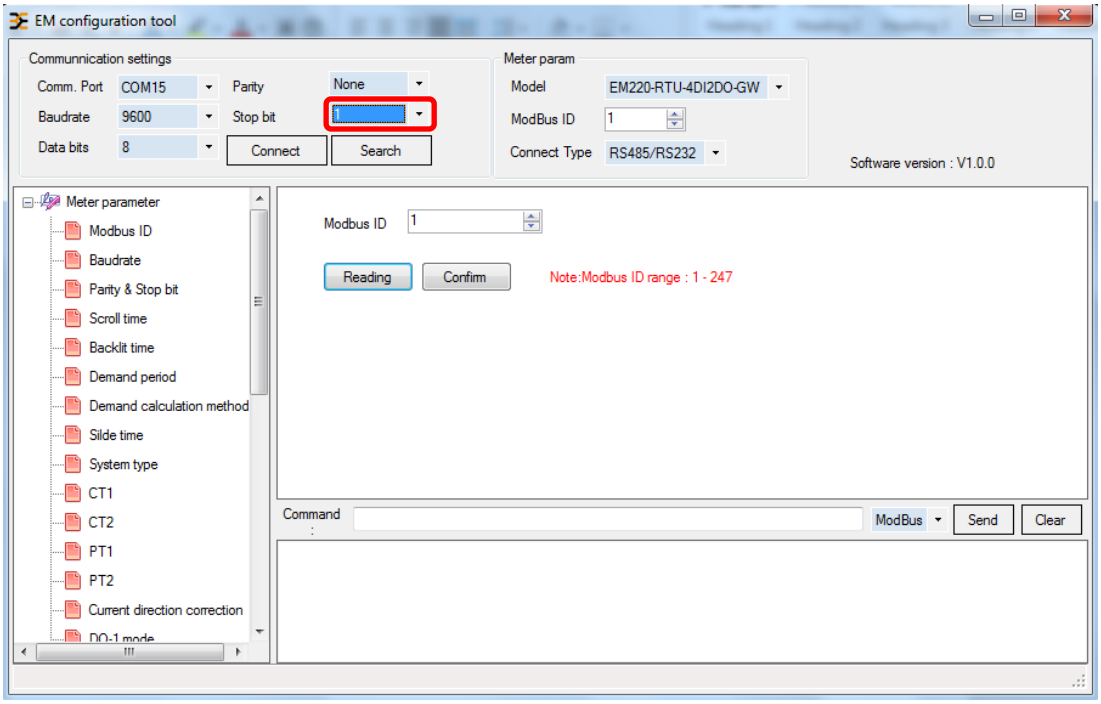
Parity selecting

Select the parity in drop-down list of 'Parity'. Optional: None, odd, even.



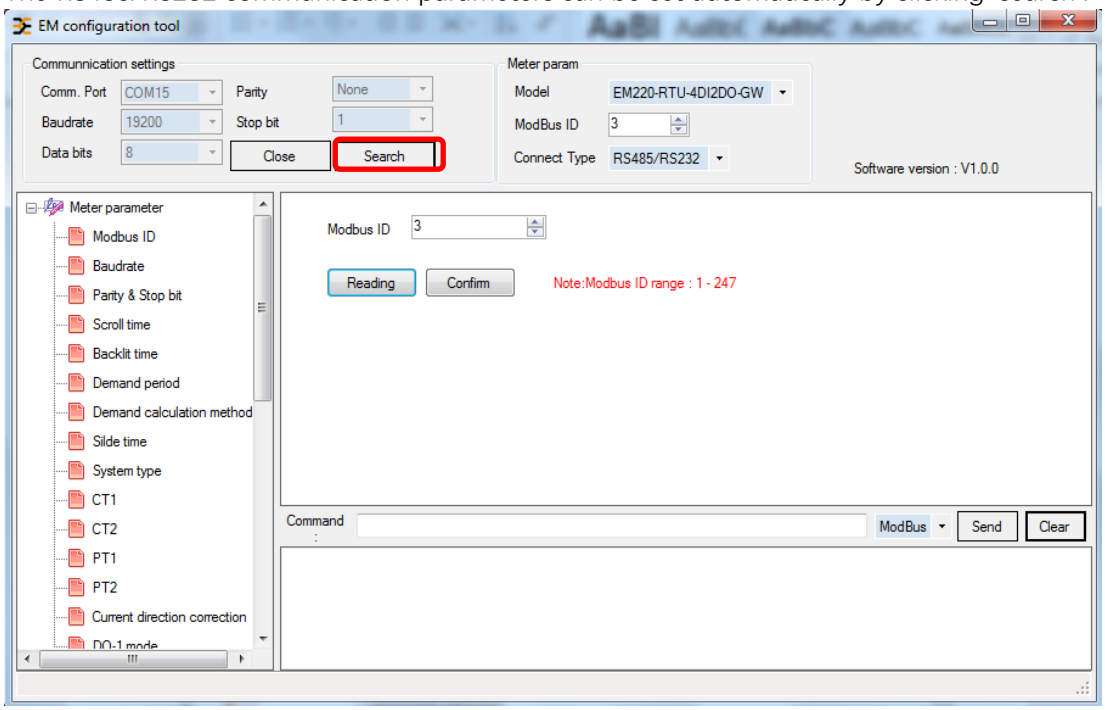
Stop bit selecting

Select the stop bit in drop-down list of 'Stop bit'. Optional: 1, 2.

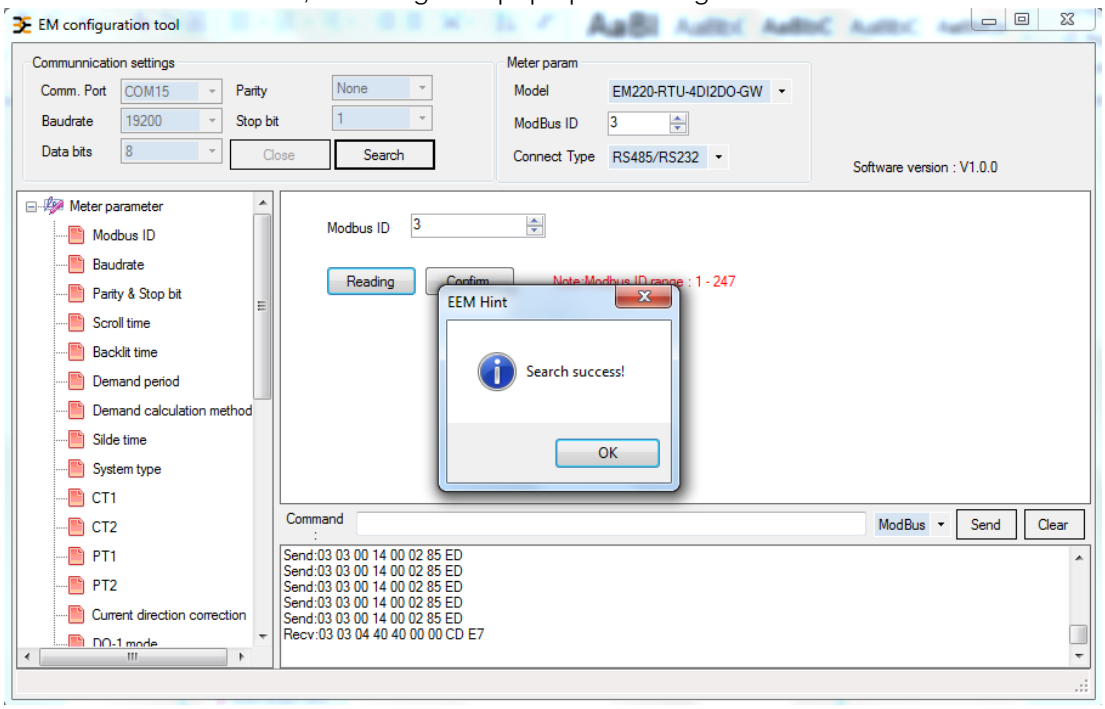


Automatic communication setting

The RS485/RS232 communication parameters can be set automatically by clicking ‘search’.



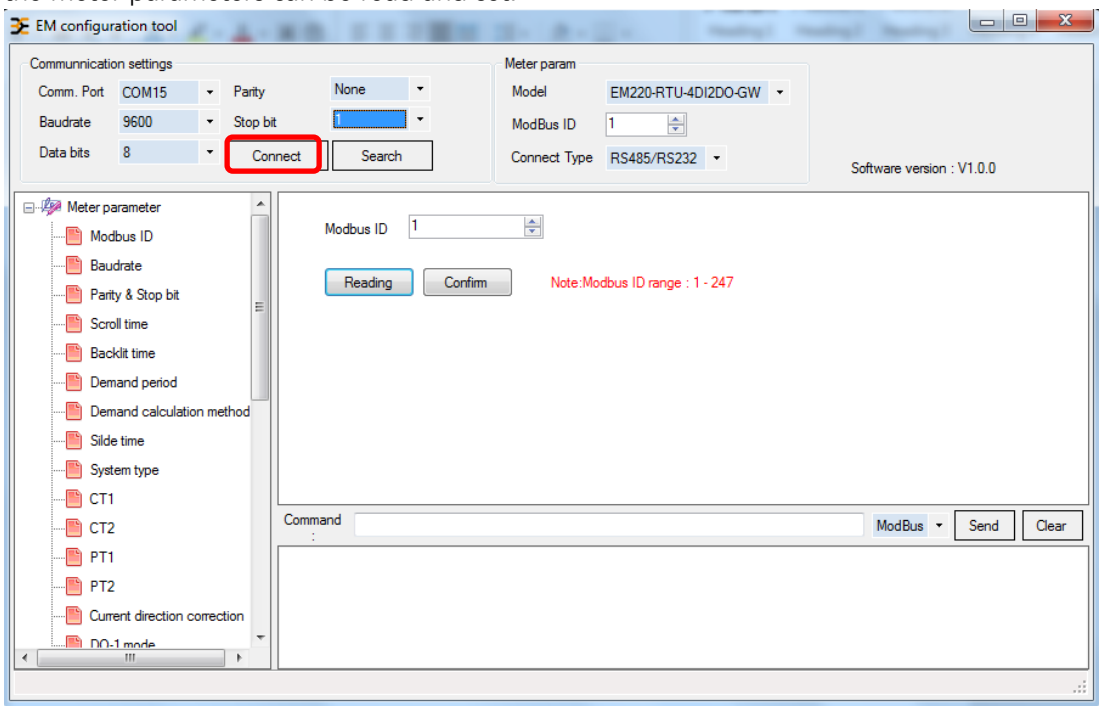
If the search is successful, a message will pop up indicating success.



Note: It is better to connect only one meter while using automatic parameter setting.

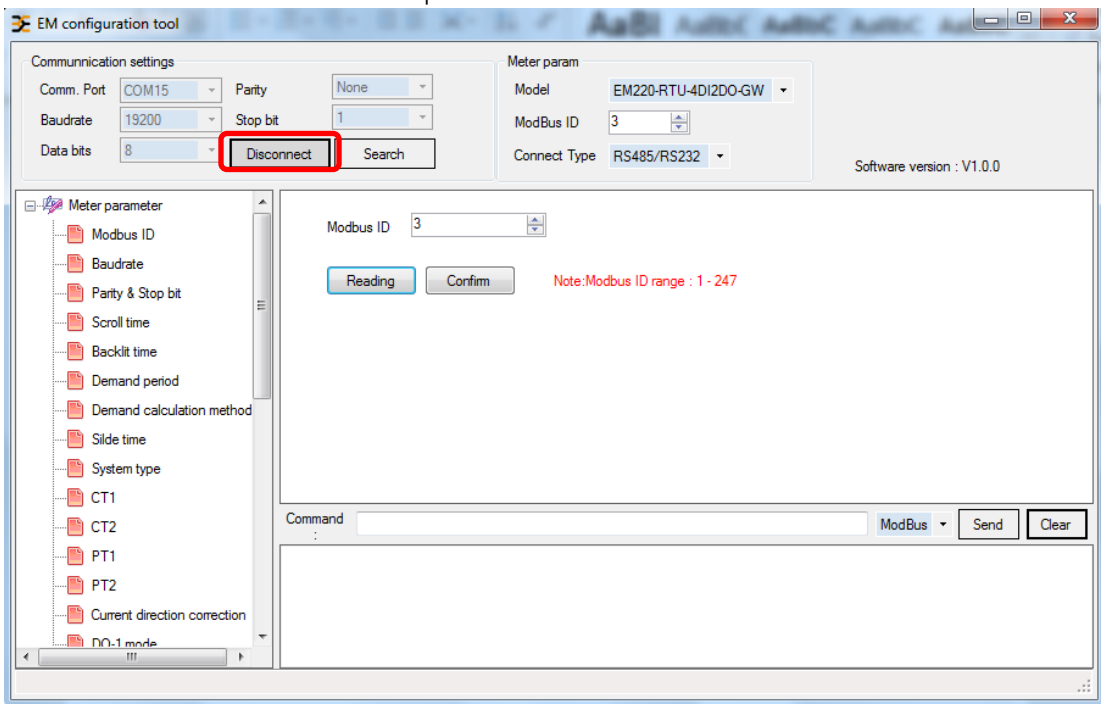
Establish RS232/RS485 connection

After all communication parameters are set, click the 'Connect' button to establish communication. Then the meter parameters can be read and set.



Stop RS232/RS485 connection

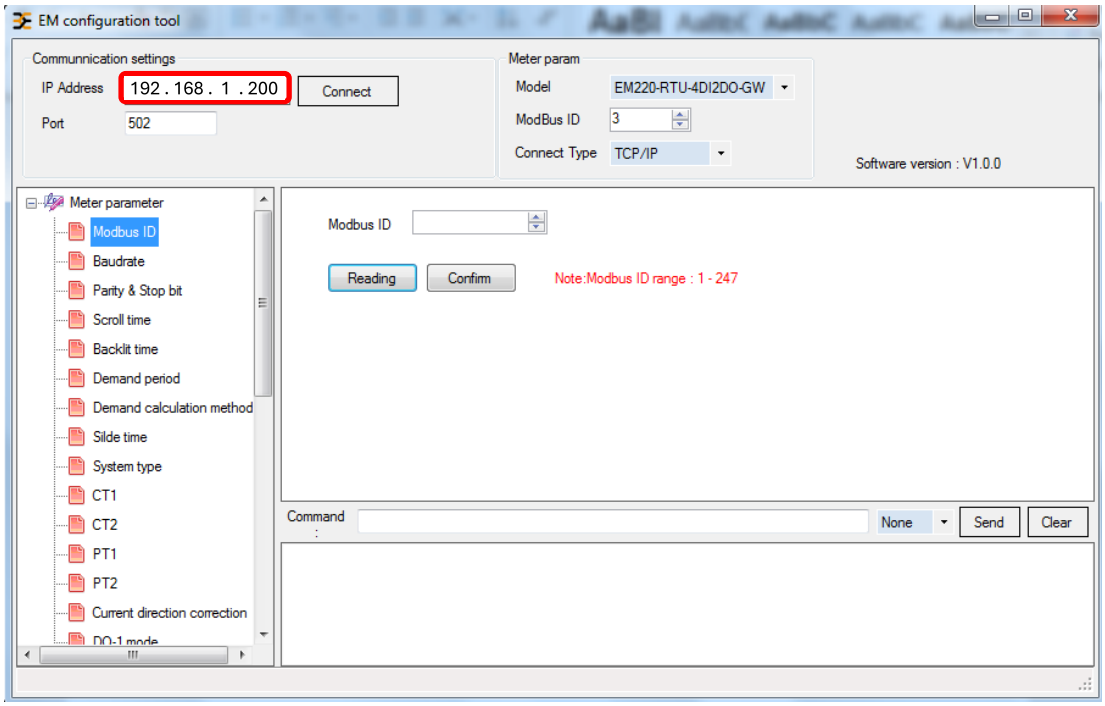
Click the 'Disconnect' button to stop connection.



TCP/IP connection setting

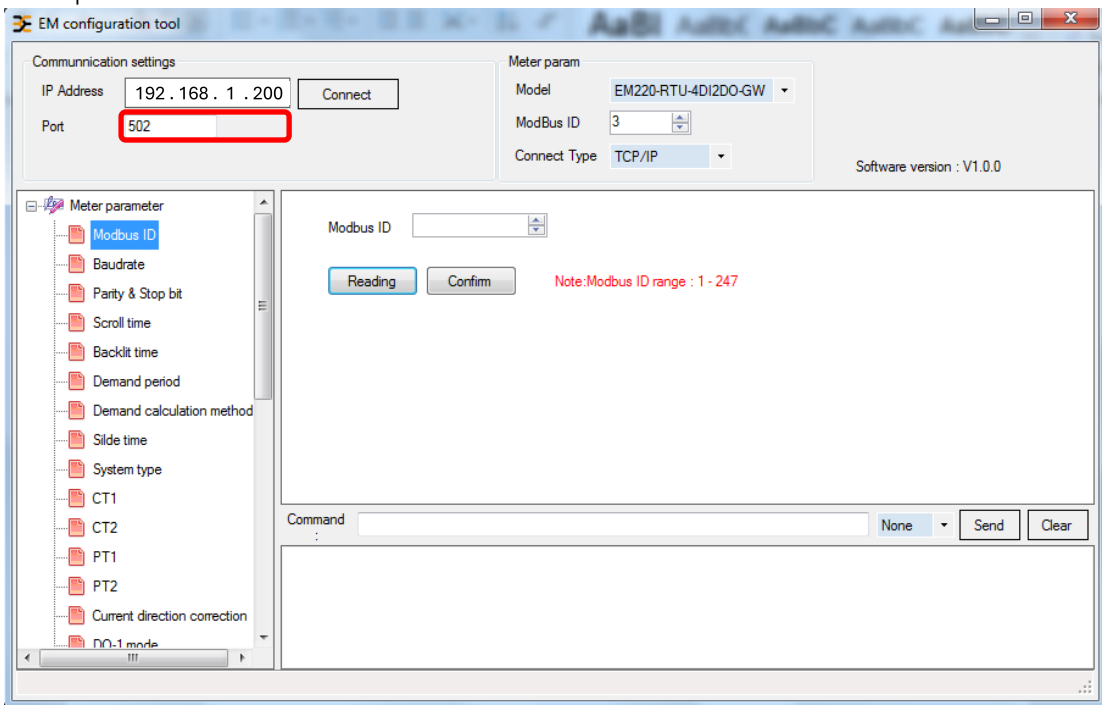
IP address setting

Enter IP Address in 'IP Address'。



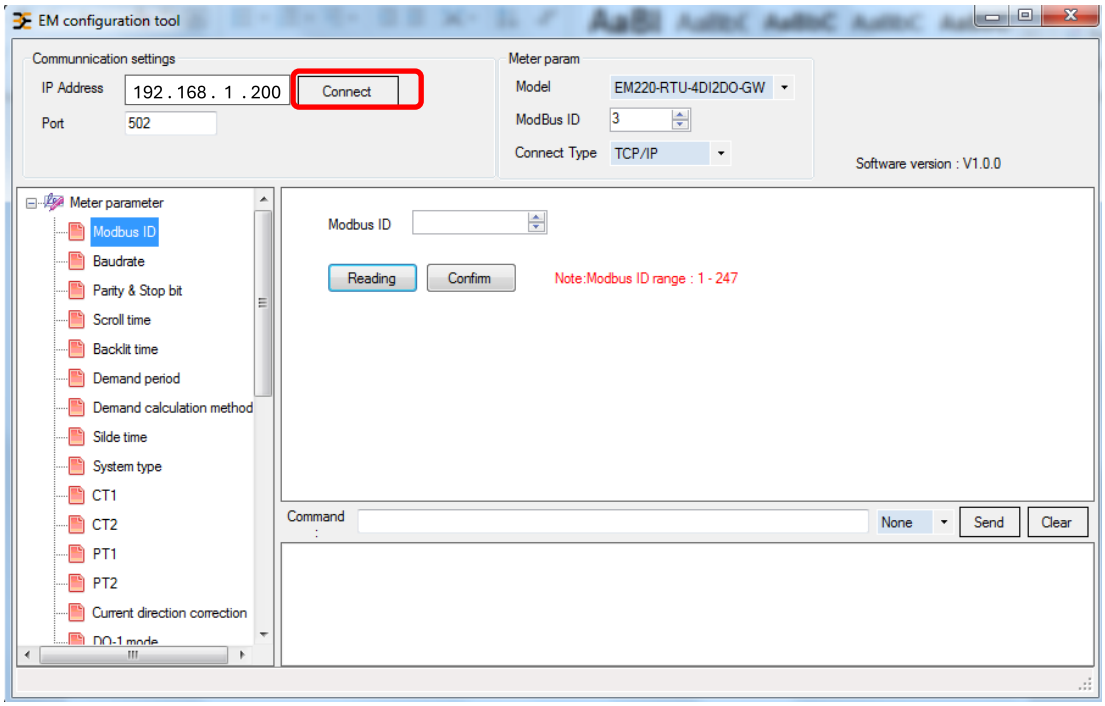
Port number setting

Enter port number in 'Port'. 502 is used for Modbus.



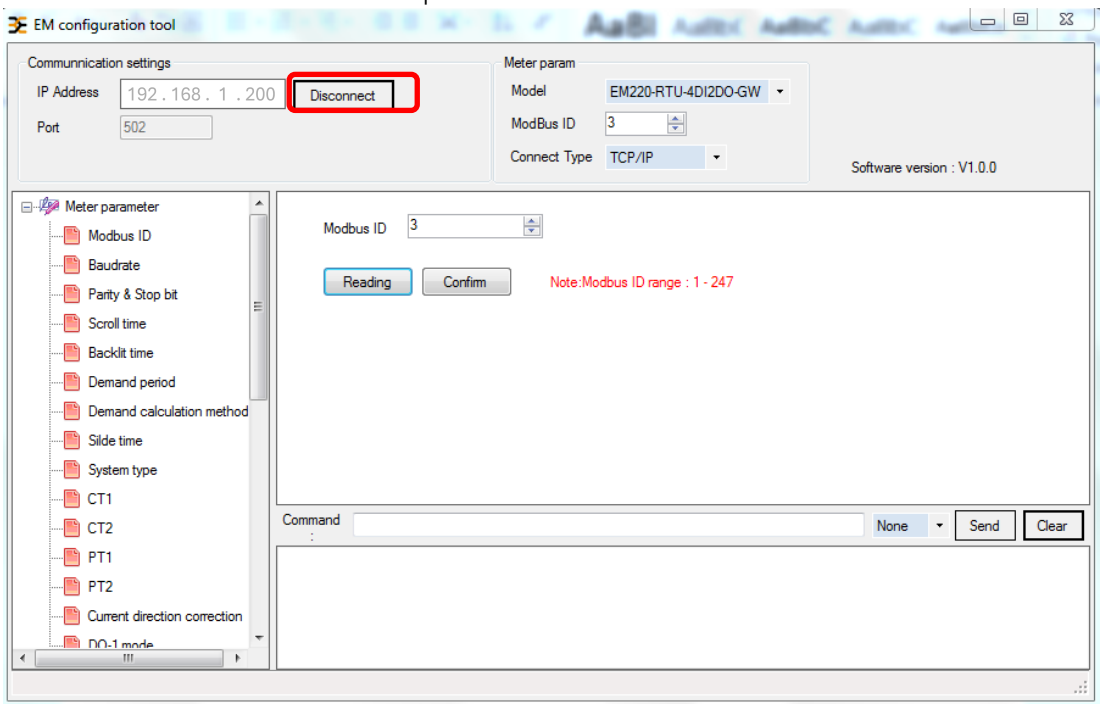
Establish TCP/IP connection

Click the 'Connect' button to establish communication. Failure message will pop up if communication establishment failed.



Stop TCP/IP connection

Click the 'Disconnect' button to stop connection.



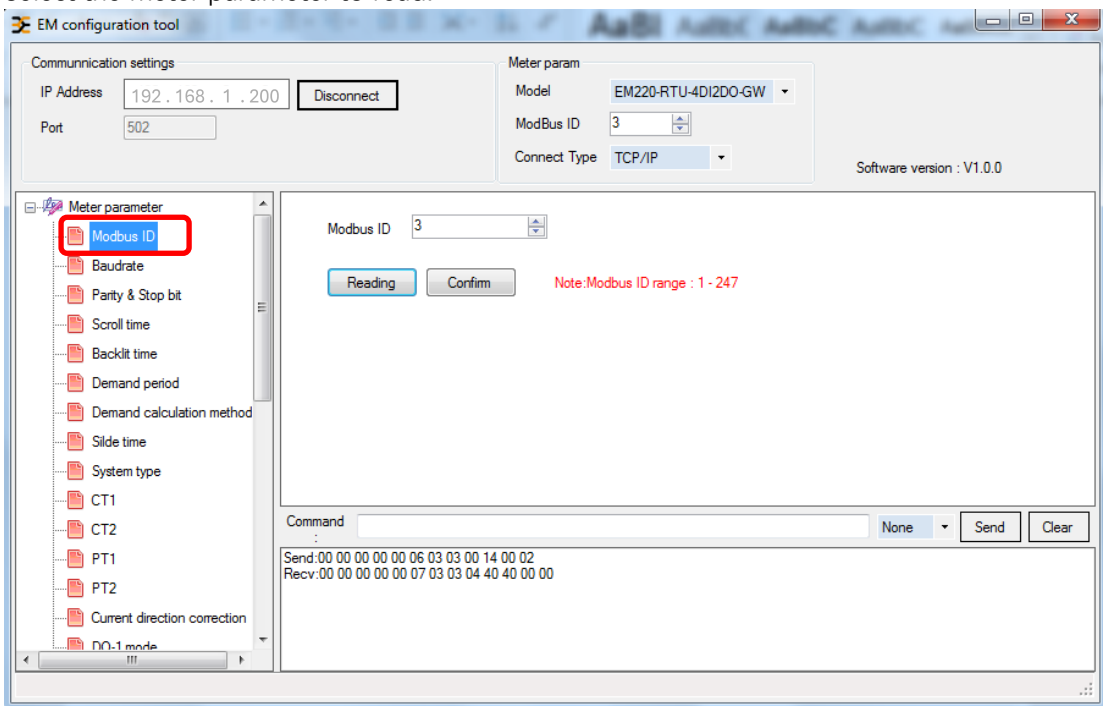
Meter parameter read and set

EM configuration tools supports reading and setting of the following parameters:

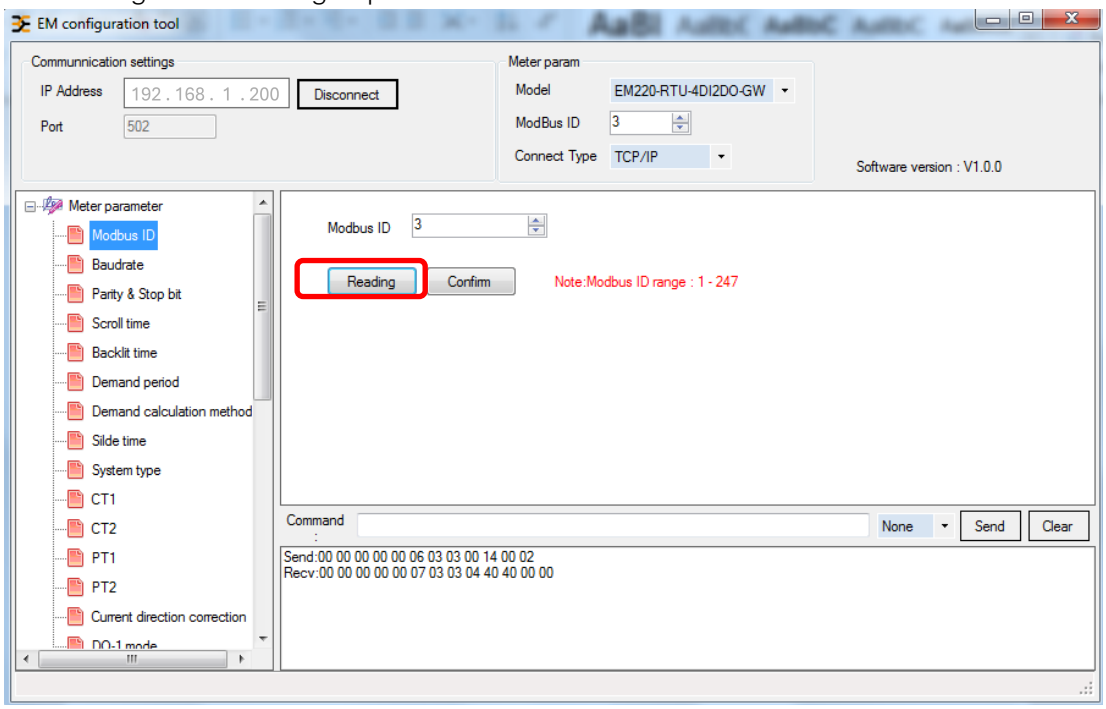
- Modbus ID
- Baudrate
- Parity & Stop bit
- Scroll time
- Backlit time
- Demand period
- Demand calculation method
- Slide time
- System type
- CT1
- CT2
- PT1
- PT2
- Current direction correction
- DO-1 mode
- DO-1 pulse duration
- DO-1 Alarm Parameter
- DO-1 Action delay time
- DO-1 Alarm value
- DO-2 mode
- DO-2 pulse duration
- DO-2 Alarm Parameter
- DO-2 Action delay time
- DO-2 Alarm value
- DI filter time
- Date & time
- Tariff
- Ethernet IP
- Gateway mode
- Password
- Serial number(only read)
- Reset(only write)

Meter parameter read

Select the meter parameter to read.

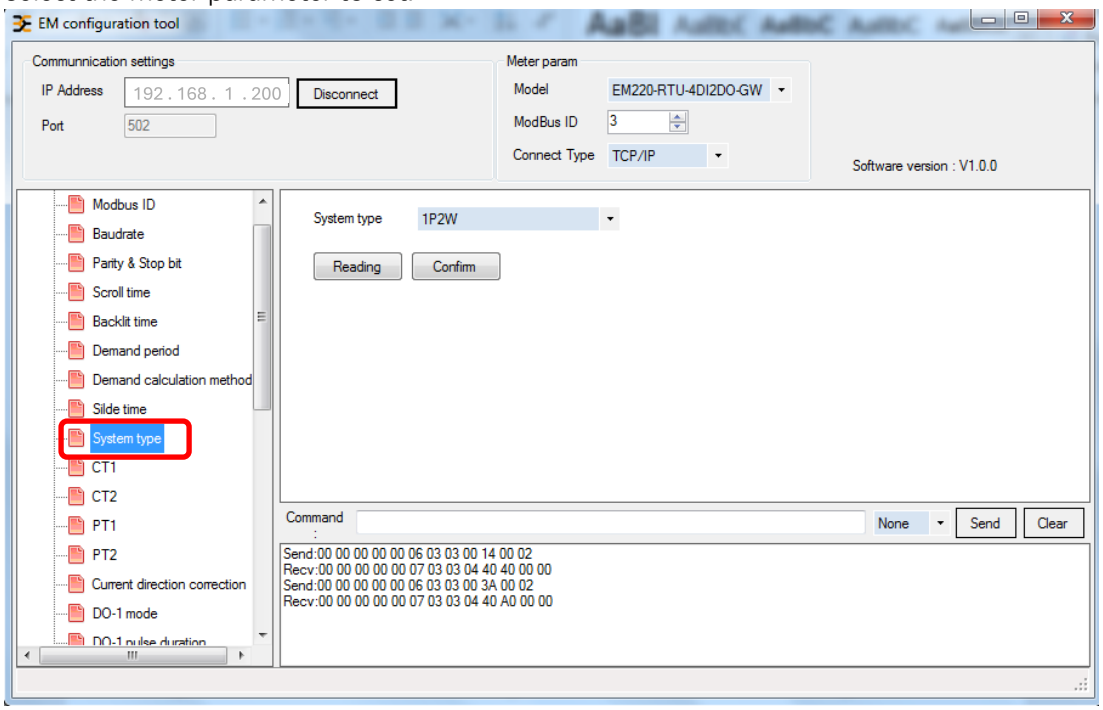


Click 'Reading' button, parameter will display in parameter bar. Please refer to the manual of energy meter for the range and meaning of parameters.

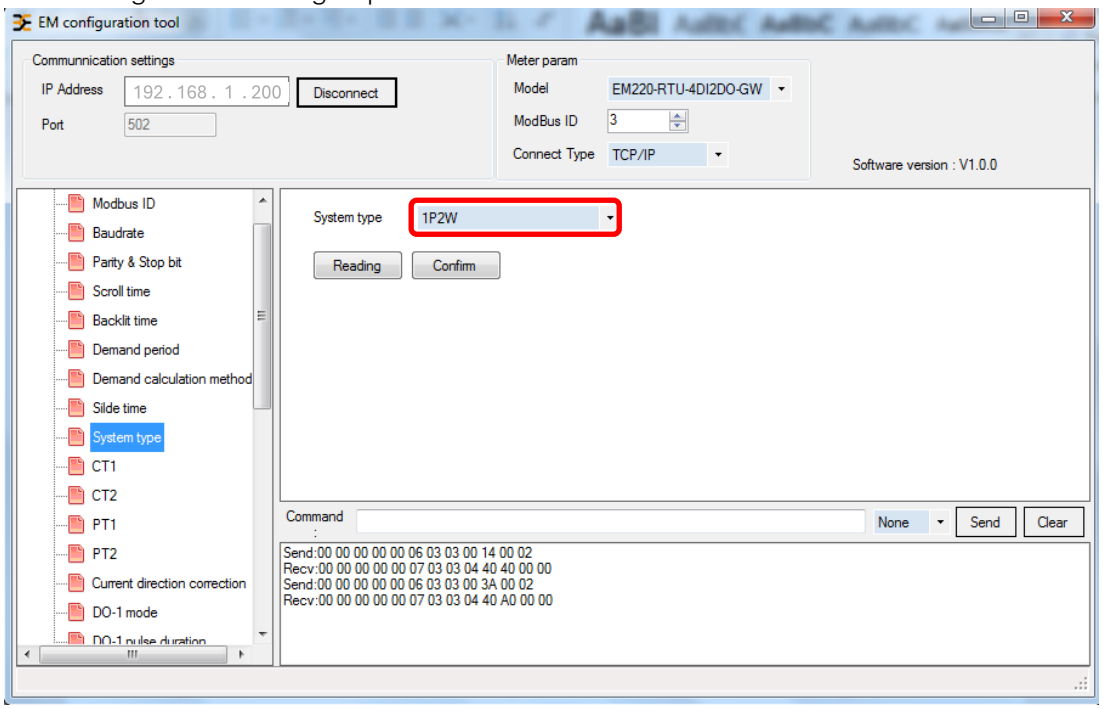


Meter parameter set

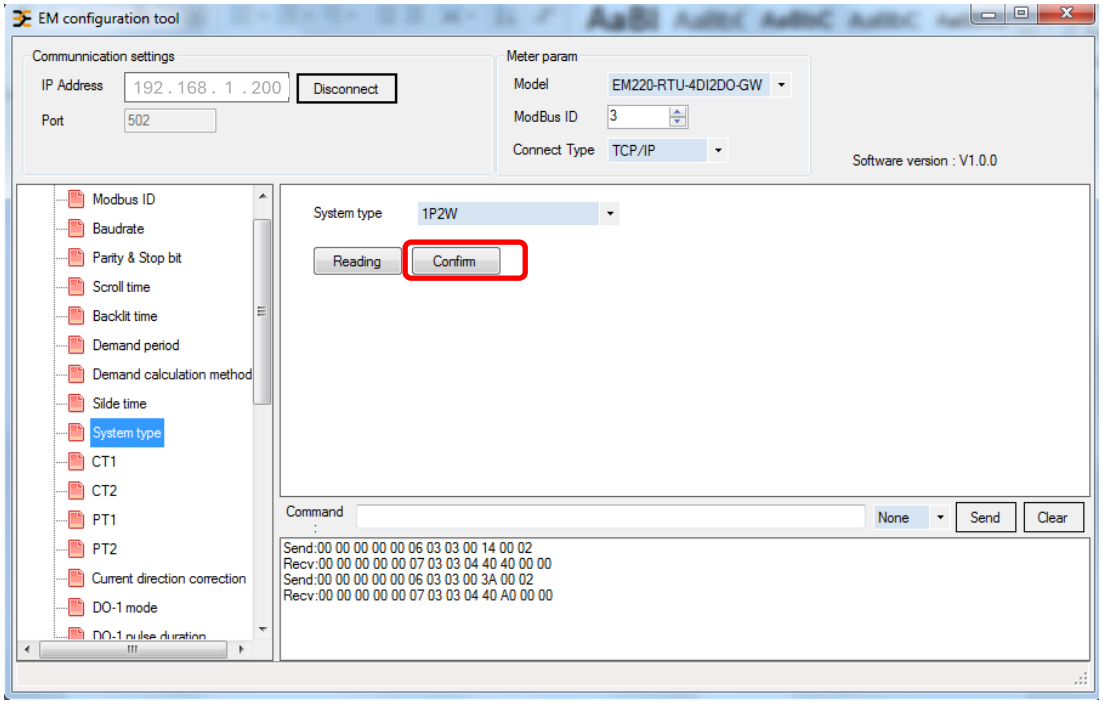
Select the meter parameter to set.



Enter the value or select from drop-down list in parameter bar. Please refer to the manual of energy meter for the range and meaning of parameters.



Click ‘Confirm’ button to set parameter。



Success message will pop up if configuration successed.