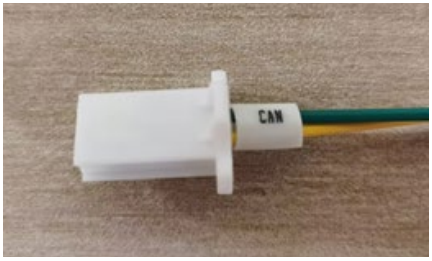
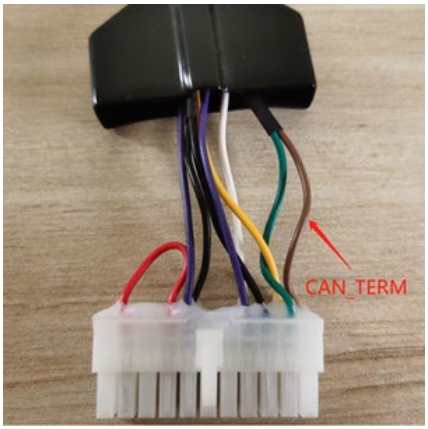
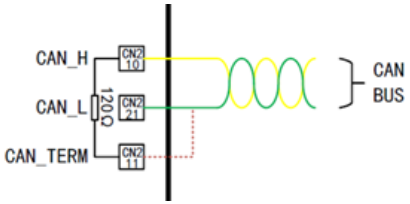
This instruction is applied to EZkontrol MCU to VCU CAN Protocols.

1、Wiring Diagram



Pin No.	Wire Color	Function Definition	Function Description
CN2-10	Yellow	CAN_H	CAN H
CN2-21	Green	CAN_L	CAN L
CN2-11	Brown	CAN_ TERM	120Ω matching resistance





120Ω matching resistance: The factory default has this 120Ω matching resistance. If it is not needed, then cut the brown wire CAN_ TERM (for multi-Communication purpose).

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2、Communication

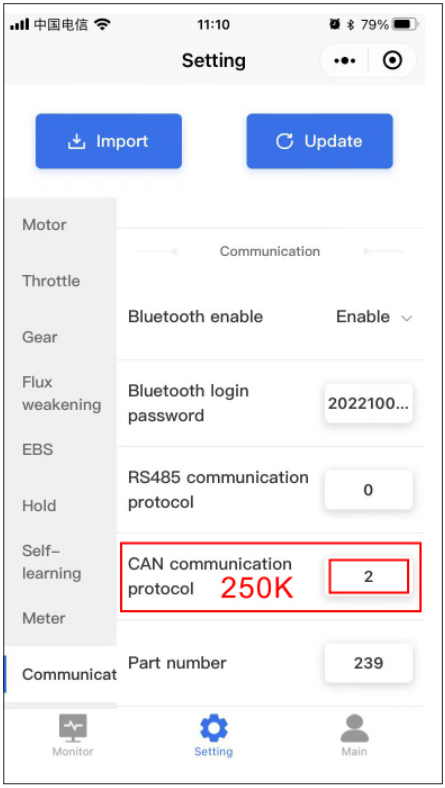
APP -> Setting -> Communication -> CAN communication Protocol: 2 (or 102)

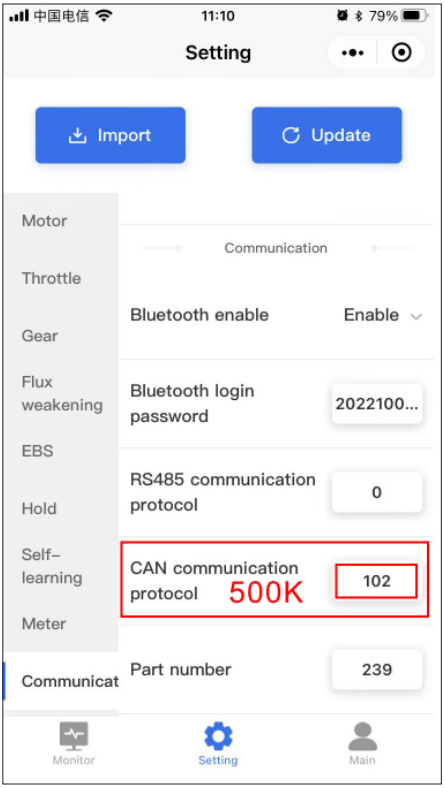
Supporting Baud rate: 250K、500

CAN communication Protocol: Hundreds number means baud rate.

CAN communication Protocol: 2. Hundreds number=0 , baud rate =250K.

CAN communication Protocol: 102. Hundreds number=1 , baud rate =500K.





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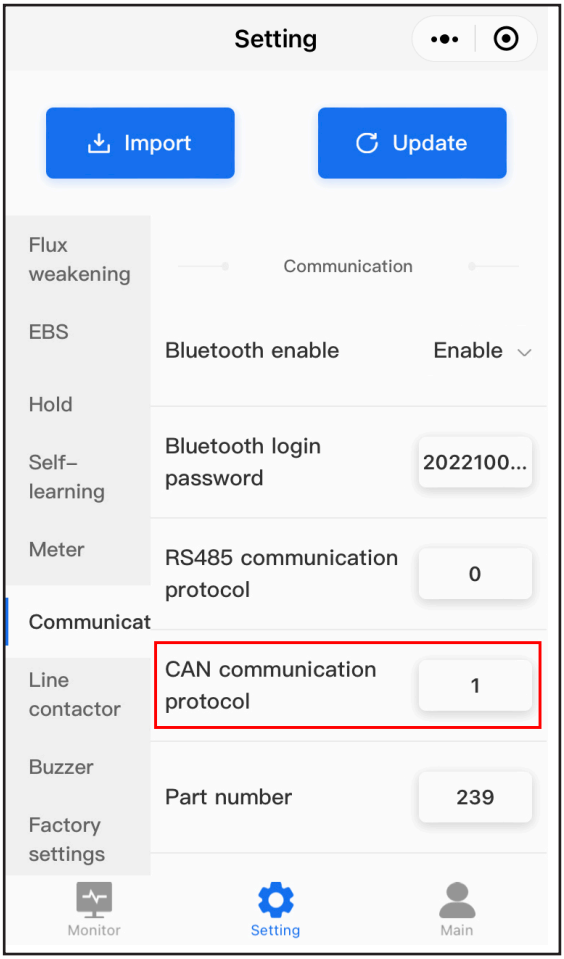
We have two CAN communication Protocols and before use, please set up as below:

1. If to use MCU to METER,set up 1 for CAN Communication protocol;
2. If to use MCU to VCU, set up 2 for CAN Communication protocol.



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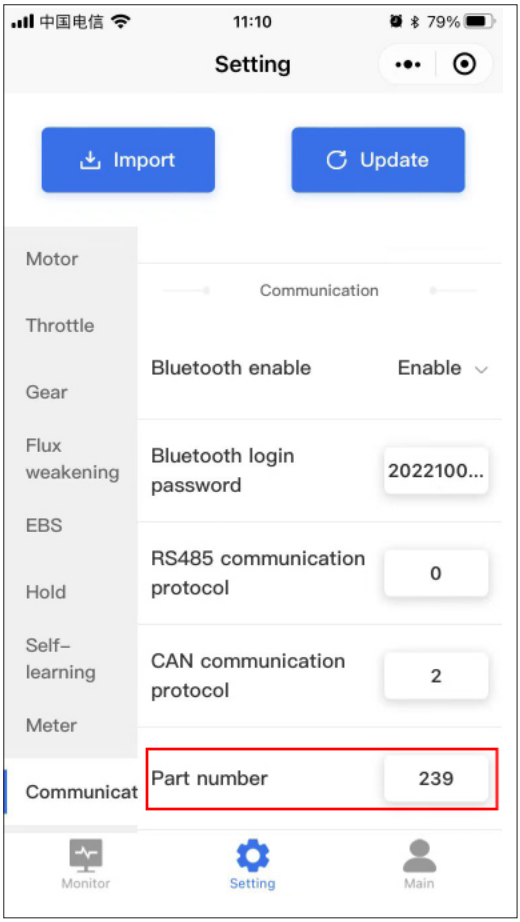
3、Multi–Communication

When more than 1 set of EZKontrol controllers are working by CAN,different IDs can be set in order to identify them.

APP -> Setting -> Communication -> default 239 (or 0xEF)



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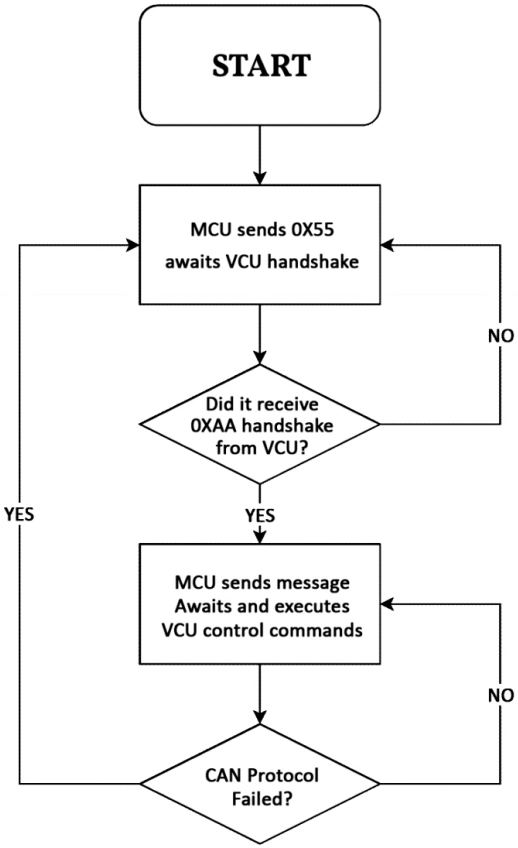
4、4. Handshake Process



（1）The controller needs to do handshake first after it's powered on. After the handshake is successful, the controller will send the messages and receive the VCU control commands.

（2）When VCU receives the normal messages sent by the controller, it means the handshake is successful. Then VCU no longer needs to send 0xaa handshake command but it needs to start to send the control commands,in polling periods of 50ms.

（3）If the controller fails to receive VCU control commands for 10 consecutive times which will be thought as CAN communication failure,then the controller will shut down and attempt to restart handshake process.

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5、VCU Messages

（1）Physical and data values conversion formula

Physical value = transmission data value * resolution + offset value

Transmission data value = (physical value -offset value) / resolution

Example: Target Phase Current 100A, Target Speed 2000rpm

Target Phase Current Transmission data value=(100A- (-3200A)) / 0.1A = 33000 = 0x80E8

Target SpeedTransmission data value== (2000rpm - (-32000rpm)) / 1rpm = 34000 = 0x84D0

（2）The target phase current and the target speed are distinguished by sign and they should have the same sign in driving the state.

For example:

Target Phase Current 100A, Target Speed 2000rpm,motor runs clockwise;

Target Phase Current -100A, Target Speed -2000rpm,motor runs anticlockwise.

（3）Control mode: Torque control & Speed control

Torque control: Adjust the target phase current , the target speed is the max. speed.

Speed control: Adjust the target speed , the target phase current is the max. current.

Therefore, the control mode is achieved by setting up target phase current and target speed. Byte4 Bit1 control mode doesn't need to do this.

（4）Life signal: For each frame of data life signal +1, by the 0 ~0xff cycle, if the controller receives wrong VCU life signal for consecutive 5 times which will be thought as CAN communication failure,the controller will shut down and attempt to restart handshake process.

（5）VCU Commands based on 100A Target Phsase Current , 2000rpm Target Speed

VCU Commands:

Byte0: 0xE8 // Target Phsase Current 100A = 33000 = 0x80E8 Low byte

Byte1: 0x80 // Target Phsase Current 100A = 33000 = 0x80E8 High byte

Byte2: 0xD0 // Target Speed 2000rpm = 34000 = 0x84D0 Low byte

Byte3: 0x84 // Target Speed 2000rpm = 34000 = 0x84D0 High byte

Byte4: 0x01 // Command，Bit0 = 1 Start

Byte5: 0x00 // reserved Byte6：0x00 // reserved

Byte7: 0x01 // Life signal，each +1

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