

# Карта RS485

## Технические характеристики

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# RS485 Card



**Communication content** This serial communication protocol defines the transmission information and use format in the series communication Including: master polling( or broadcast) format; master encoding method, and contents including: function code of

## Communication content

This serial communication protocol defines the transmission information and use format in the series communication Including: master polling( or broadcast) format; master encoding method, and contents including: function code of action, transferring data and error checking. The response of slave also adopts the same structure, and contents including: action confirmation, returning the data and error checking etc. If slave takes place the error while it is receiving information or cannot finish the action demanded by master, it will send one fault signal to master as a response.

## Application Method

The inverter will be connected into a "Single-master Multi-slave" PC/PLC control network with RS485 bus.

### Bus structure

#### (1) Interface mode

RS485 hardware interface

#### (2) Transmission mode

Asynchronous series and half-duplex transmission mode. For master and slave, only one of them can send the data and the other only receives the data at the same time. In the series asynchronous communication, the data is sent out frame by frame in the form of message

#### (3) Topological structure

Single-master and multi-slave system. The setting range of slave address is 0 to 247, and 0 refers to broadcast communication address. The address of slave for network must be exclusive.

## Protocol description

PI9000 series inverter communication protocol is a asynchronous serial master-slave communication protocol, in the network, only one equipment(master) can build a protocol (known as "Inquiry/Command"). Other equipment(slave) only can response the "Inquiry/Command"of master by providing data or perform the corresponding action according to the "Inquiry/Command"of master. Here, the master refers to a Personnel Computer(PC), an industrial control device or a programmable logic controller (PLC), etc. and the slave refers to PI9000 inverter. Master can communicate with individual slave, also send broadcasting information to all the lower slaves. For the single "Inquiry/Command"of master, slave will return a signal(that is a response) to master; for the broadcasting information sent by master, slave does not need to feedback a response to master.

Communication data structure PI9000 series inverter's Modbus protocol communication data format is as follows: in RTU mode, messages are sent at a silent interval of at least 3.5 characters. There are diverse character intervals under network baud rate,

which is easiest implemented. The first field transmitted is the device address.

The allowable characters for transmitting are hexadecimal 0 ... 9, A ... F. The networked devices continuously monitor network bus, including during the silent intervals. When the first

field (the address field) is received, each device decodes it to find out if it is sent to their own. Following the last transmitted character, a silent interval of at least 3.5 characters marks the end of the message. A new message can begin after this silent interval.

The entire message frame must be transmitted as a continuous stream. If a silent interval of more than 1.5 characters occurs before completion of the frame, the receiving device will flushes the incomplete message and assumes that the next byte will be the address field of a new message. Similarly, if a new message begins earlier than the interval of 3.5 characters following a previous message, the receiving device will consider it as a continuation of the previous message. This will result in an error, because the value in the final CRC field is not right

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