

KNX-RS485(Modbus) Bidirectional Gateway

Model No: L91KR-WGM

Profile

- KNX -RS485(Modbus) bidirectional converter is a RS485(Modbus) to KNX/EIB converter designed for intelligent building control systems
- Bidirectional communication, built-in 2000V anti-static protection.
- KNX-RS485(Modbus) converter can connect RS485(Modbus) devices with the devices on the EIB BUS to form the network system.
- The device on RS485(Modbus) sends the commands to the converter according to the protocol set by the configuration software to control the KNX device on the EIB BUS. Viceversa, you can convert corresponding KNX commands into RS485(Modbus);

Features

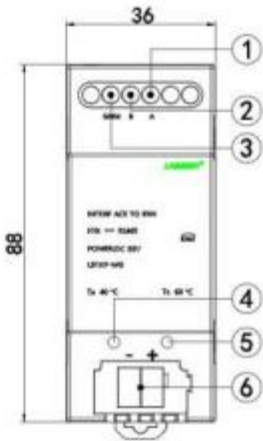
- KNX-RS485(Modbus) converter is bidirectional communication;
- The commands can be set by the configuration software
- Long life span with small size and convenient installation



Technical Parameters

Model No	L91KR-WGM
Brand	LAMMIN
Input Signal	KNX/ EIB RS485(Modbus) signal
Input Voltage	DC 30V
Output Signal	RS485(Modbus) KNX/ EIB signal
Certification	CE
Working Temp	-20°C ~ + 50°C
Warranty	3 years
Size(L*W*H) MM	39*88*65
Installation	35 mm DIN rail

Wiring Diagram and Installations



- 1)RS485(Modbus) BUS(+)
- 2)RS485(Modbus) BUS(-)
- 3)RS485(Modbus) BUS(ground PE)
- 4)Programming indicator
- 5)Programming button
- 6)KNX BUS

KNX to MODBUS data format description

Remark:

- This gateway is implemented according to the standard Modbus instructions, however there are still have differentiation. Please pay attention to the following specific data format description to avoid confusion.
- The Modbus address of the equipment of the factory is 01 by default, the broadcast address is 00, and the baud rate is 9600/None/8Bit-data/1Bit-stop.
- To modify the address and baud rate, you need to use the ETS database. After the ETS is configured and downloaded to the device, you can run according to the new configuration.
- In the baud rate setting, the parity/number of data bits and stop bits cannot be modified through the database temporarily. Only the baud rate can be modified, which has three levels: 9600,12900,115200

The following is the description of the function code:

1. Function code 03: Read the holding register, which can read the contents of multiple or single registers

This only supports host queries and does not support uploading read commands from KNX to the host.

- The message sent is 0103 1101xxxx CRC16.

Data format description:

01--Device address

03--Function code

1101--Register address = KNX group address, where the address is 2/1/1

0000--The data here can be filled with either one when the host sends a query

- The reply message is: 0103 1101 0001 [xxxxxxx] CRC16.

Data format description:

01--Device address

03--Function code

1102--Register address = KNX group address, where the address is 2/1/1

00--The length of the data involved, where the length is calculated in 16bit data. 00 means the length is 1bit-6bit, 01 means the length is one byte, and

0D means 14 bytes

01 [xxxxxxx] --Stores actual data and arranges it from the top

For example, if the group address is 2/1/1 and the real data is 03E8, Then the length is 2 and the data is as follows:

0103 1101 [Group Address] 02 [Length] 03E8 [Actual Data] 00 [Format Supplement] [CRC16]

0103 11010203 e800 crc1 crc2

Sample:

Group 2/1/1, data type is 1bit, data is 0: 010311010000 [c1c2]

Group 2/1/1, data type is 1byte, data is 128: 010311010180 [c1c2]

2. Function code 06: Send group address data to KNX bus/485 actively. This command supports sending data less than 1 BYTE.

This command is bidirectional. The group address instruction generated by the KNX bus, whose data length does not exceed 1 byte (including 1 byte), will also be sent to the host through the 06 instruction.

Data: 01 06 11 0100 01 1C F6

Red part: 1101 represents the group address 2/1/1, which is converted according to the knx standard or ETS.

Purple part: 0011, the high bit 00 represents the data length, and the low bit represents the value of the subsequent data is 1bit-6bit.

Send 1bit, on data example: 0106 1101 0001 1C F6 Send 1bit, off data example: 01 06 11 0100 00 DD 36

Send 1BYTE data example: 0106 11010180 DD06

3. Function code 10: Send group address data to KNX bus/485 actively. This command supports sending data less than 1 BYTE.

This command is bidirectional. The group address instruction generated by the KNX bus will also be sent to the host through the 06 instruction if the data length exceeds 1 byte (including 1 byte).

Data: 01 10 11 0102 02 03 E8 00 1C F6

Red part 11 01: 1101 represents the group address 2/1/1, which is converted according to the knx standard or consult ETS.

Green part 02: 02, the length of data occupied by the following data is calculated as 16bit. The blue part 02: is the actual data length (bytes).

Purple part 03 E8: is the actual data

Purple part 00: This is a supplement to the data format. It is used as a supplement when the data + length is not enough 16bit

Send 1-bit data format: 0110 1101 0001 01 0001 9740 (send 1-bit, on[1] data to the bus, group address is 2/1/1)

Send 1-byte data format: 0110 11010001 0101FF 1750 (send 1 byte, 255 data to the bus, group address is 2/1/1)

Send 2-byte data format: 0110 11010001 02 0203 E800C5B8 (send 2byte, 0x03E8 data to the bus, group address is 2/1/1)

4. Database Description: The role of the database:

Change the physical address of the device,

Change the baud rate of the device,

Change the address and broadcast address of the modbus side of the device

Note: This database does not have an object table, only 3 parameters.

There are 3 baud rate, 9600, 19200, 115200 and the address range is 0-255

Select a baud rate to communicate with the host	9600
Local modbus address	5
Broadcast modbus address	2