SureCross Wireless Technical Note

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Technical Note

Changing the Binding Code (XADR) Using Modbus Registers

This feature requires firmware version 3.3 or later on the Gateway RF micro and version 2.9 or later on the Gateway LCD micro.

To change a binding code from a host system, use the Gateway's Modbus control registers. Register 15 defines the control code and address of the message, register 16 defines the data, and register 7 provides the acknowledgement the control message was executed properly.

The binding code in the Gateway is stored in ASCII format. Valid data values are (in hex) 0x30 through 0x39, which represent 0 through 9. For example, to write a binding code of decimal 253410, the ASCII data string will be 0x32, 0x35, 0x33, 0x34, 0x31, 0x30.

The control code to write the data is 0x91.

The addresses to store the binding code are 0x2E, 0x2F, and 0x30. Each Modbus control write processes two bytes at a time, requiring a total of three operations to write the complete binding code.

Address	Data
0x2E	Binding Code bytes 4, 5
0x2F	Binding Code bytes 2, 3
0x30	Binding Code bytes 0, 1

Write Operation

Write Modbus register 16 first, then write Modbus register 15. Writing register 15 triggers the control sequence to take place.

	Modbus register bits [15:8]	Modbus register bits [7:0]
Gateway Modbus Register 16	Binding code byte N	Binding code byte N+1
Gateway Modbus Register 15	Control Code (0x91)	Address (0x2E–0x30)

Gateway Modbus register 7 is written with the control code and address from register 15 when the operation is completed.

	Modbus register bits [15:8]	Modbus register bits [7:0]
Gateway Modbus Register 7	Ack Control Code	Ack Address

Example

To write the binding code 128463 (decimal) to the Gateway, follow these steps:

Step	Instructions	Hex Value	Decimal Value	Results
1	Write Gateway Modbus register 16	0x3231	12849	This is the ASCII data for 2 and 1
2	Write Gateway Modbus register 15	0x912E	37166	This is Control Code 0x91, address 0x2E
3	Read Gateway Modbus register 7			The value is 0x912E (37166 decimal) when complete, otherwise 0x0000
4	Write Gateway Modbus register 16	0x3438	13368	This is the ASCII data for 4 and 8
5	Write Gateway Modbus register 15	0x912F	37167	This is Control Code 0x91, address 0x2F
6	Read Gateway Modbus register 7			The value is 0x912F (37167 decimal) when complete, otherwise 0x0000
7	Write Gateway Modbus register 16	0x3336	13110	This is the ASCII data for 3 and 6

Step	Instructions	Hex Value	Decimal Value	Results
8	Write Gateway Modbus register 15	0x9130	37168	This is Control Code 0x91, address 0x30
9	Read Gateway Modbus register 7			The value is 0x9130 (37168 decimal) when complete, otherwise 0x0000

To read the values from the Gateway, substitute 0xB1 for the control code shown above (write = 0x91, read = 0xB1).