

CoolMaster EDGE

Modbus Integration Guide

RTU & IP Connection, Configuration, and Register Tables

Revision 1.0 · June 2026

© 2026 CoolAutomation Ltd. All rights reserved.

Table of Contents

1	Connection	3
1.1	Modbus RTU Connection	3
2	Configuration.....	4
2.1	EDGE Config App (Web Page)	4
2.2	ASCII Interface Configuration.....	4
2.2.1	Modbus RTU Activation	4
2.2.2	Modbus Slave Address	5
2.2.3	Modbus RTU Frame Format	5
2.3	VA's Configuration.....	5
2.4	Modbus Register address Scheme	7
3	Modbus Tables.....	8
3.1	Supported Modbus Exception Codes.....	8
3.2	Supported Modbus Functions	8
3.3	Indoor Unit Modbus Objects Block.....	8

1 Connection

CoolMaster EDGE devices support Modbus RTU and Modbus IP protocols in accordance with the Modbus Organization specifications listed below:

- MODBUS Application Protocol Specification
- MODBUS over Serial Line Specification and Implementation Guide
- MODBUS Messaging on TCP/IP Implementation Guide

1.1 Modbus RTU Connection

The physical connection to the CoolMaster EDGE device is made using a "Two-Wire" electrical interface in accordance with the EIA/TIA-485 standard.

It can be connected on line L1, L2, or L3. The connection is made via the 485-A and 485-B terminals (1, 2 on the EDGE device). A ground wire connection is not mandatory but is highly recommended.

Before connecting to Modbus RTU, use the Config App to configure the relevant line (L1, L2, or L3) for Modbus RTU as either a client or a server, according to your setup.



Figure 1 – CoolMaster EDGE Modbus RTU Connection

2 Configuration

The EDGE device must be properly configured to support Modbus functionality. Configuration is made via the [local Config app](#) or through CoolAutomation's [proprietary ASCII_IF interface](#) over terminal command line.

It is allowed to have several simultaneous Modbus RTU and Modbus IP connections to the same device.

2.1 EDGE Config App (Web Page)

Use the device's built-in web server for local, web-based configuration. You can connect over the same local network, or connect an Ethernet cable directly from the EDGE device to your PC.

Once connected:

1. Access the EDGE Config web page by typing your device's local IP into your browser's address bar: **http://<Device IP>/config**. (E.g. <http://192.168.10.25/Config>)
2. To log into the Config App, use the default credentials: User: <Device SN>, Pwd: <Device PIN>. (Both the **Device SN** and **Device PIN** can be found on the label at the back of the device)
3. Go to Settings tab
 - a. Check the *Enable Modbus Server* checkbox
4. Go to line tab
 - a. Select the line you want to use for your Modbus connection (can be L1, L2 or L3).
 - b. Select Line Type – Modbus RTU (Server)
 - i. Set the appropriate line configuration for your Modbus line.
 - ii. Set **Slave ID** – this is the ID of the EDGE device on your Modbus line network.

2.2 ASCII Interface Configuration

The Modbus RTU interface module of the CoolAutomation device must be activated by assigning an appropriate communication line.

2.2.1 Modbus RTU Activation

Activate the Modbus RTU module by assigning a line type. Example (Line L3):

```
>line type L3 CG5
OK, Boot Required!
```

To check whether the Modbus RTU module is already activated, and to read its parameters (including Slave Address), use the line command:

```
> line
L1: CG5 Modbus Addr:0x64(100) 38400
Tx:0 Rx:0 TO:0 CS:0 Col:0 NAK:0 ARB:0
L2: STM U05/G05
Tx:0 Rx:0 TO:0 CS:0 Col:0 NAK:0 ARB:0
L3: CG5 Modbus Addr:0x01(1) 9600
Tx:0 Rx:0 TO:0 CS:0 Col:0 NAK:0 ARB:0
L4: Unused
Tx:0 Rx:0 TO:0 CS:0 Col:0 NAK:0 ARB:0
L5: Unused
Tx:0 Rx:0 TO:0 CS:0 Col:0 NAK:0 ARB:0
L6: Unused
Tx:0 Rx:0 TO:0 CS:0 Col:0 NAK:0 ARB:0
L7: Unused
Tx:0 Rx:0 TO:0 CS:0 Col:0 NAK:0 ARB:0
L8: Unused
Tx:0 Rx:0 TO:0 CS:0 Col:0 NAK:0 ARB:0
L9: Unused
Tx:0 Rx:0 TO:0 CS:0 Col:0 NAK:0 ARB:0
OK
```

2.2.2 Modbus Slave Address

The Modbus Slave Address can be queried with the line command or changed with the line myid command. In the example below, the new Slave Address will become 0x51 (81 decimal) after power reset:

```
>line myid L3 51
OK, Boot Required!
```

The default (factory set) Modbus Slave Address for CoolAutomation devices is 0x50 hexadecimal (80 decimal).

2.2.3 Modbus RTU Frame Format

The default Modbus RTU frame format in CoolAutomation devices is 9600_8N1:

Parameter	Value
Baud Rate	9600 bps
Data Bits	8
Parity	None
Stop Bits	1

To change frame format parameters, use the line baud command:

```
>line baud L3 19200_8N2
OK, Boot Required!
```

New frame format: 19200 bps, 8 data bits, no parity, 2 stop bits.

2.3 VA's Configuration

VA's (Virtual Addresses) are used to simplify the translation of an Indoor Unit's identifier/number (UID) into addresses of the related Modbus objects: holding registers, input registers, coils, and discrete inputs.

The UID is a string in the format Ln.XYY. For example:

- L1.102 – Indoor Unit 102 on line L1
- L2.003 – Indoor Unit 003 on line L2

The list of UIDs detected (visible) by the EDGE device can be retrieved with the ls command:

```
>ls
```

```
> ls
L2.001 OFF 30C 25C Auto Heat OK - 0
L2.002 OFF 24C 28C Auto Auto OK - 0
L2.011 ON 30C 16C Low Auto OK - 0
L2.012 OFF 25C 18C Top Heat OK # 0
L2.013 OFF 25C 19C High Auto OK - 0
L2.021 ON 28C 19C Low Dry OK # 0
L7.001 ON 25C 29C High Cool OK - 0
OK
```

Each UID can have zero, one, or multiple associated VA's. VA's are plain numbers starting at 1.

The device can automatically allocate and associate VA's with existing UUIDs:

```
>va auto
```

To query allocated VA's, use the va command without parameters:

```
>va
```

```
> va
INDOORS
L2.001 --> 00001
L2.002 --> 00002
L2.011 --> 00003
L2.012 --> 00004
L2.013 --> 00005
L2.021 --> 00006
L7.001 --> 00007
OK
```

VA's can be allocated or deallocated (deleted) individually or all at once.

Allocate a VA for a specific UUID (example: allocate VA 0004 for UUID L1.102):

```
>va + L1.102 0004
OK
```

The UUID does not need to be detected (visible) by the CoolAutomation device when the VA is allocated. Multiple VA's may be allocated for any given UUID.

To delete all allocated VA's:

```
>va delall
OK
```

To delete a specific VA (example: delete VA 0004):

```
>va - 0004
OK
```

To delete all VA's associated with a specific UUID (example: UUID L1.102):

```
>va - L1.102
OK
```

Once VA's are allocated, Modbus RTU and Modbus IP can be used to access Indoor Unit parameters via their associated VA's.

VA reporting string fields:

UUID	Associated VA	Base Address Hex	Base Address Decimal
L1.100	0001	0x0011	00017

2.4 Modbus Register address Scheme

Base Address is the starting address of the Modbus objects block related to a VA and its UID. Any operation on an Indoor Unit referenced by its UID (querying or changing status) uses the Modbus objects within that block. The block size for an Indoor Unit is 16 addresses.

The Base Address is calculated as follows: $\text{Base Address} = (\text{VA} \times 16) + 1$

Below is an example showing the relationship between UID, VA, Base Address, and Modbus objects:

UID	VA	Base Address	Modbus Objects Block			
			Discrete Inputs	Coils	Input Registers	Holding Registers
L1.100	0001	0x0011 --->	0x0011	0x0011	0x0011	0x0011
			...	...	...	...
			0x0020	0x0020	0x0020	0x0020
L1.101	0002	0x0021 --->	0x0021	0x0021	0x0021	0x0021
			...	...	...	...
			0x0030	0x0030	0x0030	0x0030

3 Modbus Tables

3.1 Supported Modbus Exception Codes

Exception Code	Exception Name
0x01 (01)	Illegal Function
0x02 (02)	Illegal Data Address
0x03 (03)	Illegal Data Value
0x04 (04)	Server Device Failure
0x05 (05)	Acknowledgment
0x06 (06)	Server Device Busy
0x0A (10)	Gateway Path Unavailable

3.2 Supported Modbus Functions

Function Code		Function Definition
Dec	Hex	
1	0x01	Read Coils
2	0x02	Read Discrete Inputs
3	0x03	Read Holding Registers
4	0x04	Read Input Register
5	0x05	Write Single Coil
6	0x06	Write Single Register
15	0x0F	Write Single Coil
16	0x10	Write Multiple Registers

3.3 Indoor Unit Modbus Objects Block

Base Address	Holding Registers	Input Registers	Coils	Discrete Inputs
+0	Operation Mode 0-Cool 4-HAUX 8-VAM Auto 1-Heat 5-Fan 9-VAM Bypass 2-Auto 6-HH 10-VAM Heat Exc 3-Dry 11-VAM Normal	UID Ln.XYY Bits 15..12: Ln Bits 11..8: X Bits 7..0: YY	On/Off 0-OFF 1-ON	Therm_ON/Demand Status
+1	Fan Speed 0-Low 3-Auto. 7-VAM Super Hi 1-Med 4-Top 8-VAM Lo FreshUp 2-High 5-Very Lo. 9-VAM Hi FreshUp	Room Temperature x10 °C	Filter Sign	Indoor Communication Failure (Indoor disconnected)
+2	Set Temperature x10 °C	HVAC Malfunction Code	External Terminals Status	
+3	On/Off 0-OFF 1-ON	HVAC Malfunction Code String ² Last two characters	Inhibit ⁴	
+4	Filter Sign	Set Temperature x10 °C	Buzzer Disable v0.9.5 (Samsung)	
+5	Swing 0-Vertical 1-30 deg 5-Auto 4-Horizontal 2-45 deg 6-OFF 3-60 deg			Reserved
+6	Room Temperature x10 °C (Read Only*) Water Temperature* x10 °C			
+7	Reserved	Reserved	Reserved	
+8	Reserved			
+9	Reserved		Reserved	Reserved
+10 0xA	Reserved		Reserved	Reserved
+11 0xB	Reserved		Reserved	Reserved
+12 0xC	Reserved			
+13 0xD	Reserved		Reserved	Reserved
+14 0xE	Cooling setpoint x10 °C	Analog Input 2	Digital Output 6	Digital Input 6
+15 0xF	Heating setpoint x10 °C	Reserved	Reserved	Reserved