CoolMasterNet PRM

Cool
Automation

**CoolMasterNet
Universal Interface Adapter
for HVAC Systems**

Table of Contents

1 Document Revision History

0.5
   - Added Midea, Kentatsu, Trane, Fujitsu
0.4 - Initial
0.3 - Preliminary

2 Acronyms

DTE   Data Terminal Equipment
GPIO   General Purpose Input/Output
HVAC   Heating Ventilation and Air Conditioning
TBD   To Be Defined

3   Layout
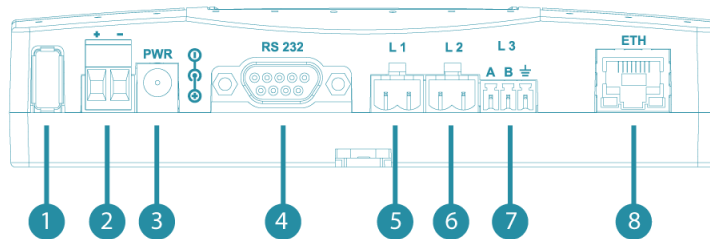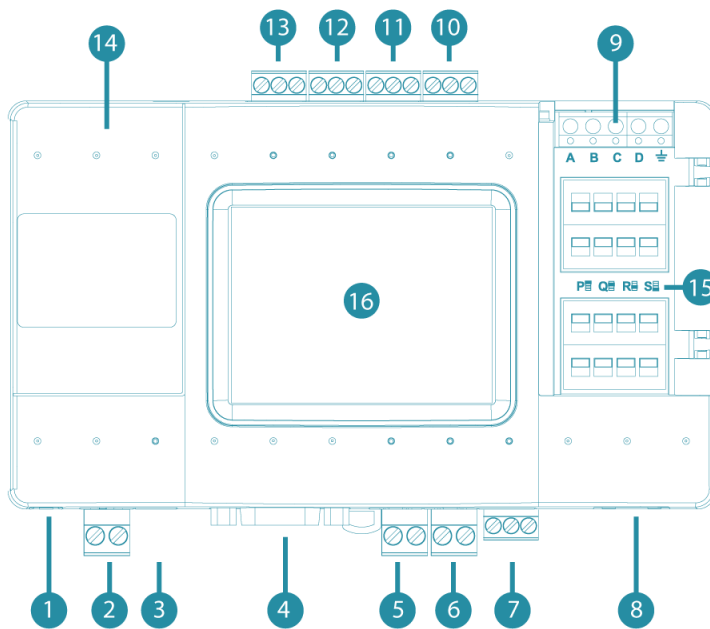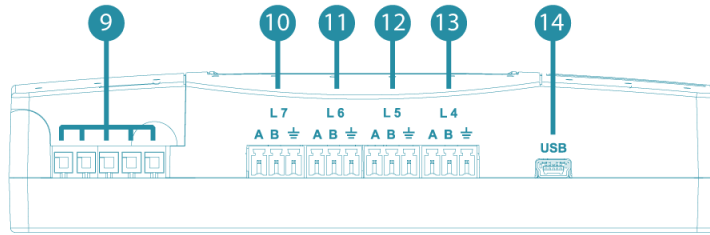
1. USB Host, HVAC Line L8
2. Power
3. Power Plug
4. RS232 Port
5. HVAC Line L1
6. HVAC Line L2
7. HVAC Line L3 or RS485 Port
8. Ethernet Port
9. GPIO
10. HVAC Line L7
11. HVAC Line L6
12. HVAC Line L5
13. HVAC Line L4
14. USB Device Port
15. DIP Switches P,Q, R,S
16. LCD with Touch Screen

4 Connections

4.1 HVAC Lines

CoolMasterNet supports eight HVAC Lines labeled as **L1** ... **L8** (see Layout), intended for connection to various HVAC systems. All eight HVAC Lines can be used simultaneously (except **L1** with **L5** and **L2** with **L6**) and independently according to CoolMasterNet configuration. Most of HVAC Lines capable to support a number of HVAC Types as specified in table below, but one at time according to Line's configuration.

HVAC Manufacturer	Acronym	L1	L2	L3	L4	L5	L6	L7	L8
Daikin	DK	✓	✓						
Mitsubishi Electric	ME	✓	✓						
Sanyo	SA	✓	✓						
Toshiba	TO	✓	✓						
Hitachi	HT	✓	✓						
LG	LG			✓	✓	✓	✓	✓	
Mitsubishi Heavy Industries	MH			✓	✓	✓	✓	✓	
Gree	GR			✓	✓	✓	✓	✓	
Midea	MD			✓	✓	✓	✓	✓	
Kentatsu	KT			✓	✓	✓	✓	✓	
Trane	TR			✓	✓	✓	✓	✓	
Fujitsu	FJ								✓

Notes:
- DIP Switches **Q** and **R** are used to adjust lines **L1** and **L2** internal parameters to meet specific HVAC Type requirements.
- Lines **L1** and **L5** share the same internal resources of CoolMasterNet and can not be used simultaneously.
- Lines **L2** and **L6** share the same internal resources of CoolMasterNet and can not be used simultaneously. DIP Switch P3 defines which line is enabled.
- Lines **L6** and **L7** can be linked into a single line **L7** with polarity auto-detection, by DIP Switches P1 and P2. Line **L2** can be enabled in this case.
- Line **L3** is by default used for ModBus RTU RS485 communication.

4.2 RS232 Port

RS232 Interface on CoolMasterNet is available from the RS232 DB9 connector. Below is a DB9 connector front view and signals table.
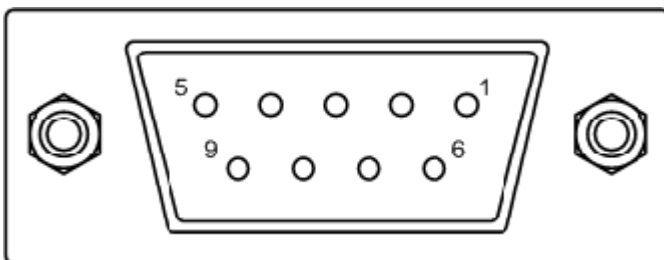
DB9 Pin	Signal Lvel	Description
2	±12V	TxD (Data from Cool

		Master NET)
3	±12V	RxD (Data to Cool Master NET)
5	GND	Ground
1,4,6,7,8	Not Connected	

Gender and pinouts of the RS232 cable supplied with CoolMasterNet are suitable for connection to PC RS232 port directly or via standard RS232 to USB adapter. Maximal length of the RS232 Cable should not exceed 25m. By default RS232 Interface is dedicated for ASCII I/F. The default CoolMasterNet RS232 Port settings are listed below:

Baud Rate	9600
Data Bits	8
Parity Control	None
Stop Bits	1
Flow Control	None

4.3 Ethernet

CoolMasterNet incorporates an IEEE 802.3 compatible 10/100 Mb/s Ethernet port supported via RJ45 connector. Below are main port features.

Parameter	Value	Notes
Max Ethernet Cable Length	137m	CAT5 twisted pair cable
Bit Rate	10/100 Mb/s	
Supported Ethernet Protocols	10BASE-T/100BASE-TX	
Protocol Auto-Negotiation	Enabled	Against Link Partner

RJ45 connector comprises Link and Activity indication LEDs used as specified below.

LED	Color	Function
Link Led	Green	ON for good link OFF for no link
Activity Led	Orange	BLINK for Tx/Rx Activity

Ethernet interface is used by a number of protocol modules available in CooLinkNet
- ASCII I/F (via ASCII I/F IP Server)
- ModBus IP
- CoolRemote

Network setting of the CooLinkNet are controlled with ifconfig command.

4.3.1 ASCII I/F IP Server

ASCII I/F IP Server referenced as **aserver** is a classic TCP/IP socket server. Aserver has the following default characteristics:

Maximal number of simultaneous connections	4	
Default TCP/IP port	10102	

4.3.2 ModBus IP

4.4 RS485

By default Line **L3** is used as an RS485 Interface line for **DTE** connection. CoolMasterNet supports the following RS485 based protocols:

- ModBus RTU (Slave mode)

4.4.1 ModBus RTU

CoolMasterNet can be used as a ModBus RTU slave device working in accordance with Modbus-IDA.ORG "MODBUS over serial line specification and implementation guide". RS485 default frame format is

Baud Rate	9600
Data Bits	8
Parity Control	None
Stop Bits	1
Flow Control	None

4.5 GPIO

CoolMasterNet supports four GPIO marked as **A B C D** (see Layout).

Parameter	GPIO A	GPIO B	GPIO C	GPIO D
V $_{IL}$	<1V	<1V	<1V	ADC
V $_{IH}$	>2.4V	>2.4V	>2.4V	ADC
V $_{OUT HI}$	3.3V	3.3V	3.3V	3.3V
I $_{OUT}$	20mA	20mA	20mA	20mA
Pull Up	5.6K	5.6K	5.6K	N.A.

Control of the GPIO functionality is done with **extio** command.

4.6 USB

CoolMasterNet incorporate USB Device and USB Host ports. USB Device port is used for maintenance operations.
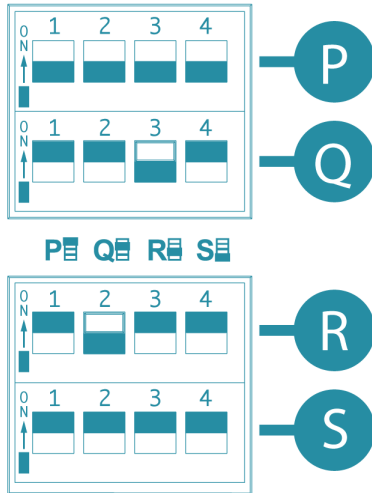
4.7 Power

CoolMasterNet can be powered from different power sources:

- AC/DC adapter supplied with CoolMasterNet
- 12-24V DC from HVAC or other equipment
- USB Device port

5   DIP Switches

DIP Switches are located behind the small access door at the upper right side of the CoolMasterNet.

DIP Switch P

Switch	ON	OFF
P1,P2	Link L6,L7 and enable polarity auto-detection on L7	Separate L6,L7
P3	L6 Enabled, L2 Disabled	L2 Enabled, L6 Disabled
P4	Production Mode	Normal Operation Mode

Notes:
- Switches P1 and P2 should be in the same position. If they are both in ON position, HVAC Lines L6 and L7 are linked into one line with option to auto-detect line polarity. Otherwise, if both P1 and P2 are in OFF position HVAC Lines L6 and L7 are separate independent lines.
- If L6 and L7 are linked into L7, enabling of the L2 with P3 will not influence on L7 operation.
- Switch P4 must be in OFF position for normal operation of CoolMasterNet.

DIP Switches Q,R

DIP Switched Q and R are used to adjust HVAC Lines L1 and L2 internal parameters to meet specific HVAC type requirements.

HVAC Type	DIP Switch Q - HVAC Line L1			
	Q1	Q2	Q3	Q4
DK	ON	OFF	ON	OFF
ME	OFF	OFF	OFF	OFF
TO	OFF	ON	OFF	ON
SA	OFF	ON	OFF	ON

HVAC Type	DIP Switch R - HVAC Line L2			
	R1	R2	R3	R4
DK	ON	OFF	ON	OFF
ME	OFF	OFF	OFF	OFF
TO	OFF	ON	OFF	ON
SA	OFF	ON	OFF	ON

Notes:

- If all four Dip Switches R1, R2, R3, R4 are in ON position during CoolMasterNet power reset, CoolMasterNet will be forced to enter BOOT Mode.

Dip Switch S

Switch	ON	OFF
S1,S2	Enable DC Output on HVAC Line L1	Disable DC Output on HVAC Line L1
S3,S4	Enable DC Output on HVAC Line L2	Disable DC Output on HVAC Line L2

Notes:
- Switches S1 and S2 should be in the same position.
- Switches S3 and S4 should be in the same position.
- DC Output on HVAC Line L1 or L2 is required only in case when the line is configured as DK or ME and non VRF equipment is connected to this line (via KRP, MAC or similar adapter). **And only if no other DC source is present on this line**.

6   ASCII I/F

CoolMasterNet provides a simple and comprehensive ASCII I/F Protocol, based on text (ASCII) strings, representing verbal commands and responses . ASCII I/F implemented in CoolMasterNet is fully backward compatible with previous versions of CoolAutomation products, but has a number of significant extensions and improvements mainly aimed to support additional CoolMasterNet functionality. ASCII I/F can be utilized via RS232 interface (see RS232 Port) or TCP/IP Server.

6.1   General Protocol Definitions

6.1.1 Messaging

Communication between DTE and CooLinkNet via ASCII I/F is based on text (ASCII) strings. Communication example is shown below

```
>ls L2
L2.102 OFF 20C 27C Auto Cool OK   - 0
L2.103 OFF 20C 24C Low  Auto OK   - 0
OK
>
```

← command	DTE to CooLinkNet
← response	
← exit code	CooLinkNet to DTE
← prompt	

Command string sent to CooLinkNet must be terminated with <CR> (carriage return 0x0D) <LF> (line feed 0x0A) sequence or a single <CR> character. Strings from CooLinkNet (except prompt character) are always terminated with <CR> <LF>. Commands are case sensitive and should not contain leading or trailing spaces. The only separator between command name and command parameter(s) is space (0x20) character. Configuration parameter **echo** (see set command), defines if characters sent to CooLinkNet via RS232 interface are echoed back or not. If **echo** is not zero - characters are echoed.
In case of RS232 interface, prompt character '**>**' is unconditionally sent by CooLinkNet. In case of ASCII Server prompt sending is configurable.

6.1.2 Exit Code

CoolMasterNet provides Exit Code in verbose or numeric form. Numeric form format is
`ERROR:N`
where N is a number in range 0...999. If verbose format is not specified in table below it means error has only numeric format.

Numeric	Verbose	Description
0	OK	Command executed successfully
1		UID not found
2		UID must be precise
3	Bad Format	Command format is wrong
4	Failed	Command execution failed
5	Line Unused	Line is unused
6	Unknown Command	Command is unknown
7		Line number is wrong
8		Wrong function
9	Bad Parameter	Command parameter is wrong
10	OK, Boot Required!	Command execution will be effective after reboot

6.1.3 UID

UID is used to identify Indoor Unit or a set of Indoor Units. UID has the following format:

Line	Dot	Indoor Number	
Ln	**.**	X	YY

- Line is a CooLinkNet HVAC Line number in range L1..L4. **L*** means "any line". In some cases to provide backward compatibility Line can be omitted from the UID.
- Dot is a separator between Line and Indoor Number. If Line is omitted or has a **L*** form, dot must also be omitted.
- Indoor Number is an Indoor Unit number in HVAC system. Indoor Number can be '*' that means "any"

Examples:

L1.102	Indoor Unit 102 on line L1
L2.003	Indoor Unit 003 on line L2
L*100	Set of Indoor Units 100 on all lines
L3.1*	Set of Indoor Units 1xx on line L3 (L3.100, L3.101, ...)
L4	All Indoors on line L4
L*	All Indoors on all lines
203	Similar to L*203 (for backward compatibility only)

UID_STRICT

In some cases only specific Indoor Unit should be referenced by UID. In this case it is required to use UID_STRICT in format **Ln.XYY** where '*' usage is prohibited.

6.2   Commands Reference

Synopsis and description of the commands listed below have the following notation:
- Parameters or parameters group in angle brackets **< >** are mandatory.
- Parameters or parameters group in square brackets **[ ]** are optional and can be omitted.
- The curly braces **( )** are used to denote group inside braces
- The **|** character between parameters inside brackets means OR.

6.2.1 Configuration Commands

set
line
ifconfig
boot

simul
sddp
gpio
info
knx

set
SYNOPSIS

        set   [<SETTING>   <VALUE>]
        set   defaults

DESCRIPTION

Query or change CoolMasterNet setting(s). Without parameters **s e t** command will list all supported settings and their values. To change setting use format with **<SETTING>** and **<VALUE>**. Some settings are read only (RO) and can not be changed.
set   defaults will load default values to all settings

<SETTING>	Mode	Printed as	Value*	Description
S/N	RO	S/N		CoolMasterNet Serial Number
version	RO	version	X.Y.Z	CoolMasterNet Firmware Version
app	RW	application	string	CoolMasterNet Application
baud	RW	baud rate	1200...115200	RS232 Interface baud rate. Default: **9600**
echo	RW	echo	0 or **1**	RS232 Interface echo control. 0 - disabled, 1 - enabled
verbose	RW	verbose	0 0r **1**	Exit Code format. 0 - numeric, 1 - verbose
aserver port	RW	aserver port	integer	aserver TCP port. Default: **10102**
aserver prompt	RW	aserver prompt	0 or 1	aserver prompt control
deg	RW	deg C/F	**C** or F	Temperature scale Celsius or Fahrenheit

* - Bold values are defaults.

EXAMPLE

Disable echo:
```
>set echo 0
OK
>
```

Change aserver TCP port:
```
>set aserver port 12345
OK
>
```
Load defaults:
```
>set defaults
OK
>
```

line

SYNOPSIS

```
    l i n e
    line  <PROPERTY>  <Ln>  <VAL>
```

DESCRIPTION

Query or change HVAC Line(s) status and configuration. In format without parameters **l i n e** command will provide information about current Line statuses. Second format is used to change write enabled properties.

<PROPERTY>	Mode	Value	Description	Notes
master	R/W	0 or 1	CoolMasterNet acts as a Master device	DK,LG only
simul	R/W	integer	Simulate given number of Indoor Units. To disable simulation use "0". Simulation is persistent (not disabled after power reset)	
myID	R/W	string	CoolMasterNet Own address on given HVAC Line. **For ModBus RTU Line myID is a "Slave Device Address"**	

baud	R/W		Configure UART parameters for given Line. Value format is: <BAUD> <8|9><N|E|O><1|2> For example: 9600 8N1	Where applicable
Tx	RO	integer counter	Transmitted messages	Printed as Total/Last Last means since previous print
Rx	RO		Received messages	
TO	RO		Timeout errors	
CS	RO		Checksum errors	
Col	RO		Collision errors	
NAK	RO		NAK errors	

scan	WO	0 or 1	Implicitly detect Indoor Units	
DCOUT	R/W	- or +	Control DC output on L1,L2	DK,ME only
slink	R/W	O or N	Configure SuperLink mode O - old, N - new	MH only
[A|B] or [B|A]	RO		Current polarity	Line L7 only

EXAMPLE

```
>line
  L1: SA U00/G02 myID:E5
   Tx:732/732 Rx:47227/47227 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
  L2: DK Master U00/G07 myID:0B
   Tx:4579/4579 Rx:50633/50633 TO:3/3 CS:0/0 Col:10/10 NAK:0/0
  L3: Unused
   Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
  L4: Unused
   Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
  L5: Unused
   Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
  L6: Unused
   Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
  L7: MH SLink:N U00/G02 myID:C900 [A|B]
   Tx:20072/20072 Rx:26989/26989 TO:25/25 CS:0/0 Col:1/1 NAK:0/0
OK
```

Become Slave on Line L4
```
>line master L4 0
OK, Boot Required!
```

Set Line L3 baud rate to 19200, 8 data bits, even parity, 1 stop bit
```
>line baud L3 19200 8E1
OK, Boot Required!
```

ifconfig

SYNOPSIS

```
    ifconfig
    ifconfig  <PROPERTY>  <VALUE>
    ifconfig       enable|disable
```

DESCRIPTION

Query or configure Ethernet network settings. Without parameters, **i f c o n f i g** command will list current configuration. To change configuration use format with **<PROPERTY>** and **<VALUE>**. Parameter **I P** can be set to **DHCP** (DHCP client) or fixed IP number. In case of DHCP - Netmask and Gateway values are provided by DHCP server. By default CoolMasterNet is configured for DHCP client operation. CoolMasterNet Ethernet module can be enabled or disabled with corresponding command.

EXAMPLE

Query
```
>ifconfig
MAC    : 28:3B:96:FF:FF:FE
Link   : Up
IP     : 192.168.1.109 (DHCP)
Netmask: 255.255.255.0
Gateway: 192.168.1.1
OK
```

Configure fixed IP and Gateway
```
>ifconfig IP 192.168.1.102
OK, Boot Required!
>ifconfig Gateway 192.168.1.0
OK, Boot Required!
```

Configure DHCP client operation
```
>ifconfig IP DHCP
OK
```

Disable Ethernet
```
>ifconfig disable
OK, Boot Required!
```

boot
SYNOPSIS

> **boot**
> **boot   [N]**

DESCRIPTION
- <N> omitted - Enter Boot Mode
- <N> = 2 - Reset CoolMasterNet

simul
SYNOPSIS

> **simul   [Ln]   <CNT>**

DESCRIPTION
Simulate **<CNT>** Indoor Units on HVAC Line **<Ln>**. If **<Ln>** is omitted the first not "Unused" HVAC Line will be taken. Simulation is not persistent and CoolMasterNet reset will terminate it.

EXAMPLE

Simulate 5 Indoor Units on HVAC Line L2

```
>simul L2 5
OK
```

sddp

SYNOPSIS

> **sddp**
> **sddp**   **<enable|disable|identify|offline|alive>**

DESCRIPTION

Configure Control4® Simple Device Discovery Protocol (SDDP) module. CoolMasterNet is compliant with Control4® SDDP v1.0 specification and can act as SDDP enabled device.

- Without parameters, if SDDP module was enabled, **sddp** command will list supported protocol version and packet counters.
- **sddp**   **enable** - persistently enables SDDP module (effective after reset)
- **sddp**   **disable** - persistently disables SDDP module (effective after reset)
- **sddp**   **identify** - sends IDENTIFY message to Control4® Composer tool to add CoolMasterNet to the current project
- **sddp**   **offline** - signals that CoolMasterNet is going offline
- **sddp**   **alive** - signals that CoolMasterNet is online

EXAMPLE

Enable SDDP module

```
>sddp enable
OK, Boot Required!
```

gpio

SYNOPSIS

> **gpio**
> **gpio** **func** **<A|B|C|D>** **<GPIO_FUNCTION>**
> **gpio**   **norm** **<A|B|C|D>**   **<c|C|o|O>**

DESCRIPTION

Query or configure GPIO functionality. GPIO configurations are persistent (over power reset) and take effect only after reboot.

- Without parameters **gpio** command provides information about current GPIO configuration in the below format:

```
>gpio
  A: ALL OFF (HI), N.O.
  B: ALL ON  (LO), N.C.
  C: Unused  (HI)
  D: Unused  (HI)
```

Field	Value	Description
GPIO name	A,B,C,D	
GPIO function	Unused	GPIO has no functionality and stays in input (HiZ) state
	ALL OFF	If GPIO is triggered*, all Indoor Units will be turned OFF

	ALL ON	If GPIO is triggered*, all Indoor Units will be turned ON
Current Signal Level	(HI)	Signal Level on GPIO is HI
	(LO)	Signal Level on GPIO is LO
Normal Signal Level	N.O.	Normal state of GPIO is "Normally Open" (HI)
	N.C.	Normal state of GPIO is "Normally Closed" (LO)

Notes:
*GPIO is Triggered if it transits from Normal to Active (opposite to Normal) state.

- **gpio func <A|B|C|D> <GPIO_FUNCTION>**
Configure GPIO function. Supported GPIO functions are listed in table above.

- **gpio norm <A|B|C|D> <c|C|o|O>**
Configure Normal state of GPIO.

EXAMPLE

Disable GPIO A functionality
```
>gpio func A Unused
OK, Boot Required!
```

Set GPIO C function to "ALL OFF"
```
>gpio func C ALL OFF
OK, Boot Required!
```

Set Normal state of GPIO A to N.C.
```
>gpio norm A C
OK
```

info

knx

SYNOPSIS

        knx   addr
        knx   ram
        knx   group
        knx   funcs
        knx   group   <GA>   <func>   <direction>   <UID>
        knx   group   dellall
        knx   group   -<N>

DESCRIPTION

- **knx   addr**

- **knx   ram**

- **knx   group**
List KNX groups (linkage status)

- **knx   funcs**

- **knx   group   <GA>   <func>   <direction>   <UID>**
Create new KNX group, i.e. link KNX group address **<GA>** with <%PROD> function and UID.

- **knx   dellall**

Delete all KNX groups

- **knx   -<N>**

Delete KNX group **<N>**.

6.2.2 HVAC Status and Control Commands

on
off
cool
heat
fan
dry
auto
temp
fspeed
swing
filt
stat
ls
query
vam
wh
lock
group

on

SYNOPSIS

on   [UID]

DESCRIPTION

Turn on Indoor Unit(s).

EXAMPLE

Turn on Indoor Unit 102 on line L1

```
>on L1.102
OK
>
```

Turn on all Indoor Units on Line L2

```
>on L2*
OK
>
```

off

SYNOPSIS

off   [UID]

DESCRIPTION

Turn off Indoor Unit(s).

EXAMPLE

Turn on Indoor Unit 102 on line L1
```
>off L1.102
OK
>
```
Turn on all Indoor Units on line L2
```
>off L2*
OK
>
```

cool

SYNOPSIS

       cool   **[UID]**

DESCRIPTION

Set Indoor Unit(s) operation mode to cool.

EXAMPLE

Set Indoor Unit 102 on line L1 to cool mode
```
>cool L1.102
OK
>
```
Set all Indoor Units on line L2 to cool mode
```
>cool L2*
OK
>
```

heat

SYNOPSIS

       heat   **[UID]**

DESCRIPTION

Set Indoor Unit(s) operation mode to heat.

EXAMPLE

Set Indoor Unit 102 on line L1 to heat mode
```
>heat L1.102
OK
>
```
Set all Indoor Units on line L2 to heat mode
```
>heat L2*
OK
>
```

fan

SYNOPSIS

>   **fan   [UID]**

DESCRIPTION

Set Indoor Unit(s) operation mode to fan.

EXAMPLE

Set Indoor Unit 102 on line L1 to fan mode
```
>fan L1.102
OK
>
```
Set all Indoor Units on line L2 to fan mode
```
>fan L2*
OK
>
```

dry

SYNOPSIS

>   **dry   [UID]**

DESCRIPTION

Set Indoor Unit(s) operation mode to dry.

EXAMPLE

Set Indoor Unit 102 on line L1 to dry mode
```
>dry L1.102
OK
>
```
Set all Indoor Units on line L2 to dry mode
```
>dry L2*
OK
>
```

auto

SYNOPSIS

>   **auto   [UID]**

DESCRIPTION

Set Indoor Unit(s) operation mode to auto.

EXAMPLE

Set Indoor Unit 102 on line L1 to auto mode
```
>auto L1.102
OK
>
```
Set all Indoor Units on line L2 to auto mode
```
>auto L2*
```

```
OK
>
```

temp

SYNOPSIS

> temp **[UID]**   **[±]<TEMP>**
> temp **[UID]**   **<TEMP.d>**

DESCRIPTION

Change Indoor Unit(s) Set Temperature.

- In form **temp <UID> [±]<TEMP>**

<TEMP> parameter must be decimal natural number. Command can work in relative or absolute manner. If plus '+' or minus '-' sign precedes **<TEMP>** parameter it's value will be added to or substituted from current Set Temperature value. Otherwise Set Temperature will be set to the given **<TEMP>** value.

- In form **temp <UID> <TEMP.d>**

Set Temperature parameter **<TEMP.d>** is a fractal number with 0.1 precision. (In this case preceding +|- are not allowed). If HVAC System does not support 0.1 precision for the Set Temperature (see table below), the final value will be nearest supported value.

AC Type	Set Temperature Precision
DK	0.1ºC
ME	0.1ºC

The **deg** setting (see set command) defines which temperature scale Celsius or Fahrenheit is used for **<TEMP>** and **<TEMP.d>** parameters value.

EXAMPLE

Set Indoor Unit 102 on line L1 Set Temperature to 23º
```
>temp L1.102 23
OK
>
```
Decrease all Indoor Units on line L2 Set Temperature by 2º
```
>temp L2* -2
OK
>
```
Set all Indoor Units on line L2 Set Temperature to 24.5º
```
>temp L2* 24.5
OK
>
```

fspeed

SYNOPSIS

> fspeed **[UID]**   **<l|m|h|t|a>**

DESCRIPTION

Set Indoor Unit(s) Fan Speed to:
- l - low

- m - medium
- h - high
- t - top
- a - auto

Not all Indoor Units support Fan Speed options listed above. Specific Fan Speeds support depend on specific Indoor Unit capabilities. If requested Fan Speed is not supported by Indoor Unit(s) **fspeed** command will have no effect.

EXAMPLE

Set Indoor Unit 102 on line L1 Fan Speed to low
```
>fspeed L1.102 l
OK
>
```
Set all Indoor Units on Line L2 Fan Speed to high
```
>fspeed L2* h
OK
>
```

filt

SYNOPSIS

> filt   <UID>

DESCRIPTION

Reset Filter Sign.

EXAMPLE

Reset Filter Sign on Indoor Unit 102 0n line L1
```
>on L1.102
OK
>
```
Reset Filter Sign on all Indoor Units on Line L2
```
>on L2*
OK
>
```

stat

SYNOPSIS

> stat   [UID]
> stat2   [UID]
> stat3   [UID]
> stat4   [UID]

DESCRIPTION

Get Indoor Unit(s) status list.

These commands are deprecated and are not recommended for use in CooLinkNet. They are implemented for backward compatibility only. Detailed description of these commands can be found in the PRM of previous CooLink versions.

ls

SYNOPSIS

ls   [UID]

DESCRIPTION

Get Indoor Unit(s) status list. If UID is omitted all Indoor Units connected to CooLinkNet will be listed.
Indoor Unit status line has strict format, so that every status field is printed in fixed position.

- Indoor Unit status line with Celsius temperature scale

```
0123456789012345678901234567890123456
L2.102 OFF 20C 27C High Cool OK   - 0
```

- Indoor Unit status line with Fahrenheit temperature scale

```
012345678901234567890123456789012345678
L2.102 OFF 120F 127F High Cool OK   - 0
```

Field	Position in string		Values
	Celsius	**Fahrenheit**	
UID	0-5		LN.XYY
On/Off	7-9		ON,OFF
Set Temperature	11-12	11-13	nnC or nnnF
Room Temperature	15-16	16-18	nnC or nnnF
Fan Speed	19-22	21-24	Low, Med, High, Top, Auto
Operation Mode	24-27	26-29	Cool, Heat, Fan, Dry, Auto
Indoor Failure Code	29-32	31-34	OK - no failure, else Indoor Failure Code
Filter Sign	34	36	- or # (Filter Sign)
Demand	36	38	0 or 1

EXAMPLE

```
>ls L2
L2.101 ON  25C 27C Low  Cool OK   - 1
L2.102 OFF 20C 27C High Cool OK   - 0
OK
>ls L2.101
L2.101 ON  25C 27C Low  Cool OK   - 1
OK
>ls
L1.101 ON  25C 24C Low  Cool OK   - 1
L1.102 ON  22C 23C Med  Cool OK   - 0
L2.101 ON  25C 27C Low  Cool OK   - 1
L2.102 OFF 20C 27C High Cool OK   - 0
OK
```

query

SYNOPSIS

query   <UID_STRICT>   <o|m|f|t|h|e|a|s>

DESCRIPTION

Query one of the operation conditions of given Indoor Unit. **<UID_STRICT>** parameter must define single Indoor
Unit in form **Ln.XYY** or **XYY**. Resulting value is printed as alpha-numeric value according to the table below.

Query	Operation Condition	Value
o	On/Off	0 - Off, 1 - On
m	Operation Mode	0 - Cool 1 - Heat 2 - Auto 3 - Dry 4 - Haux 5 - Fan
f	Fan Speed	0 - Low 1 - Medium 2 - High 3 - Auto 4 - Top
t	Set Temperature	Natural
e	Failure Code	0 - No failure, otherwise failure code same as in ls command
a	Ambient Temperature	Natural
h	Set Temperature	0.01º Precision
s	Louver Position	0 - No Louver Control a - auto (swing) h - horizontal 3 - 30º 4 - 45º 6 - 60º v - vertical

EXAMPLE

```
>query L1.100 o
1
OK
>query L1.100 m
0
OK
>query L1.100 t
25
OK
>query L1.100 a
27
OK
>query L1.100 f
2
OK
>query L1.100 e
U4
OK
>query L1.100 e
0
OK
>query L1.100 h
20.50
OK
```

swing

SYNOPSIS

swing <**UID**>   <h|v|a|3|4|6>

DESCRIPTION

Set Indoor Unit(s) louver position to:

- h - horizontal
- v - vertical
- a - auto (swing)
- 3 - 30º
- 4 - 45º
- 6 - 60º

Not all Indoor Units support louver position options listed about or have louver position control at all. Louver control is capability of the specific Indoor Unit type. If requested louver position is not supported by Indoor Unit(s), **swing** command will have no effect.

EXAMPLE

Set Indoor Unit 102 on line L1 louver to horizontal position

```
>swing L1.102 h
OK
>
```

vam

SYNOPSIS

vam <**UID_STRICT**>   <a|b|x|n|l|L|h|H|s|t|A>

DESCRIPTION

Control Ventilation Unit.

Letter	Operation	Compatibility		
		DK	**ME**	**LG**
a	Auto Mode	✓	✓	✓
b	Bypass (Bps) Mode	✓	✓	
x	Heat Exchange (HExc) Mode	✓	✓	✓
n	Normal Mode			✓
l	Low Fan	✓	✓	✓
L	Low Fan with Fresh-Up	✓		
h	High Fan	✓	✓	✓
H	High Fan with Fresh-Up	✓		
s	Super High Fan		✓	✓
t	Top Fan		✓	
A	Auto Fan	✓	✓	✓

ON/OFF control of the Ventilation Unit is performed with regular **on** and **o f f** commands.

EXAMPLE

Set Heat Exchange mode on Ventilation Unit 101 on Line L1

```
>vam L1.101 x
OK
```

wh

SYNOPSIS

> **wh <UID_STRICT>   <h|e|w|a>**

DESCRIPTION

Control Water Heater Unit.

Letter	Operation	Compatibility
		ME
h	Heat Mode	✓
e	Eco Mode	✓
w	Hot Mode	✓
a	Anti-freeze Mode	✓

ON/OFF control of the Water Heater Unit is performed with regular **on** and **o f f** commands.

EXAMPLE

Set Hot Mode on Ventilation Unit 101 on Line L1

```
>wh L1.101 w
OK
```

lock

SYNOPSIS

> **lock   <UID_STRICT>**
> **lock   <UID>   <-|+>[o|m|t]**

DESCRIPTION

Most of the HVAC systems have an prohibit/lock/inhibit functionality to prevent user from changing Indoor Unit settings via wired or remote Local Controller. Same functionality is provided by CoolMasterNet with **lock** command. Following invocations are supported*:

lock <UID> +	Lock** ON/OFF, Mode, Set Temperature
lock <UID> -	Unlock*** ON/OFF, Mode, Set Temperature
lock <UID> +o	Lock ON/OFF
lock <UID> -o	Unlock ON/OFF
lock <UID> +m	Lock Mode
lock <UID> -m	Unlock Mode
lock <UID> +t	Lock Set Temperature
lock <UID> -t	Unlock Set Temperature
lock <UID_STRICT>	Query locks for specific Indoor Unit. <UID_STRICT> defines single Indoor Unit in form **Ln.XYY**

Notes:

* - different invocations can be combined in one command (see example below)

Lock** - means operation(s) is(are) prohibited

Unlock*** - means operation(s) is(are) enabled

EXAMPLE

Query locks for Indoor Unit L5.001
```
>lock L5.001
-o -m -t
OK
```

Lock Mode change and unlock Set Point change
```
>lock L5.002 +m-t
OK
```

COMPATIBILITY

DK	Yes
SA,TO	Yes
Other	N.A.

group

SYNOPSIS

> **group**
> **group** <UID1_STRICT> <UID2_STRICT>
> **group**   **delall**

DESCRIPTION

Control group operation in CoolMasterNet. Grouping of two Indoor Units means that second Indoor Unit will follow ON/OFF, Mode, Fan Speed, Set Temperature and Swing settings of the first Indoor Unit.

- In format without parameters **group** will list existing groups
- **group**   **delall** will delete all groups
- **group** <UID1_STRICT> <UID2_STRICT> will create new group, where UID2 will follow UID1

EXAMPLE

Group Indoor unit L5.001with L5.002
```
>group L5.001 L5.002
OK
```

List existing groups
```
>group
G000: L5.001 --> L5.002
G001: L5.001 --> L5.003
OK
```

Delete all groups
```
>group delall
OK
```