HDL Integration Guidelines



CoolMasterNet CooLinkNet

HDL Integration Guidelines

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1 Connection

CoolAutomation devices can be connected to HDL buspro via 4-wire or Ethernet UDP interface.



For the Ethernet connection, CoolAutomation device should be in the same TCP/IP subnet with HDL Ethernet bus gateway. Example of the gateway is SB-DN-1IP device.

2 Configuration

Only one connection to HDL bus may be enabled in CoolAutomation device. Simultaneous 4-wire and Ethernet connection is not supported.

2.1 HDL 4-wire activation

HDL 4-wire interface module of the CoolAutomation device has to be activated by assigning appropriate communication Line. In CoolMasterNet it is highly recommended to use Line L3, although it is possible to use any of the L4, L5, L6, L7 lines as well. In CooLinkNet Line L3 usage for HDL 4-wire interface module is mandatory.

CoolMasterNet	CooLinkNet
>line type <mark>L3 HDL</mark>	>line type <mark>L3 HDL</mark>
OK, Boot Required!	
	OK, Boot Required!

To check if HDL 4-wire module is already activated, line command should be used:

CoolMasterNet	CooLinkNet
>line	>line
L1: DK Master U00/G00 myid:0B	L1: Unused
Tx:2/2 Rx:2/2 TO:0/0 CS:0/0 Col:0/0 NAK:0/0	Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L2: Unused	L2: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0	Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L3: HDL SubNetID:0x01, DeviceID:0x63	L3: HDL SubNetID:0x01, DeviceID:0x63
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0	Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L4: Unused	L4: M1M2 Slave U00/G00 Not Connected
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0	Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L5: Unused	L5: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0	Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L6: Unused	OK
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0	
L7: Unused	
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0	
L8: Unused	
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0	
OK	

2.2 HDL Ethernet activation

Ethernet HDL interface module of the CoolAutomation device is activated and queried with below commands.

Enable: >hdl eth enable OK, Boot Required! Power reset required to make changes current.

Query:	
>hdl eth	
status	: enabled

Connection

ID	:	01 63
send cntr	:	0
recv cntr	:	0
crc cntr	:	0
OK		

To disable Ethernet connection to HDL buspro run: >hdl eth disable OK, Boot Required!

2.3 HDL settings

Configure Subnet and Device ID in 4-wire mode:
 line myid L3 0164
 OK, Boot Required!

Configure Subnet and Device ID in Ethernet mode:
 hdl eth myid 0164
 OK, Boot Required!

Hexadecimal value 0164 shown in example above denotes resulting Subnet ID = 01 (01 hexadecimal) and Device ID = 100 (64 hexadecimal). The default value for Subnet ID is 01 and for Device ID it is 99.

3 HDL Project

This chapter describes a simple HDL project where CoolMasterNet and a DLP panel are used and interplay. Detailed information about HDL Buspro Setup tool should be obtained from corresponding HDL documentation. In this document only basic information required for given example is provided.

• Launch HDL Buspro Setup tool and run "Search on-line devices". CoolMasterNet should be detected and shown like in example below:

ch on-line d	levices				
arch on-line dev	vices				
Fast Search	h: Search:	Cubant ID 255	During ID	Ta and the second se	Subnet Add all
Manually Ac	dd:	Subnet ID	Device ID		dd
rrent on-line dev	vices				
tatus	Subnet ID	Device ID	Model	Remark	Description
	1	99	SB-MCM	CoolMasterNet	CoolMaster (> HDL Data Transfer
, ,	1	105	SB-DN-48DMX	IP Gateway	48 channels scene controller bus
	1	47	HDL MPLS 48.EH	KF aroad	DLP Panel with AC Music Clock Floor Heating
1					

Add found HDL devices to device list and exit device search panel. Note that in this example CoolMasterNet has Subnet ID = 1 and Device ID = 99.

 Double click on CoolMasterNet line in device list to open "CoolMaster <---> HDL Data Transfer" window. Go to "CoolMaster <--> BUS" tab. Here you can link between Indoor Units detected by CoolMasterNet and "HDL AC No". To see Indoor Units that CoolMasterNet has detected run I s command:

>ls							
L1.100	ON	067F	072F	Low	Fan	OK	- 0
L1.101	OFF	064F	081F	Auto	Heat	OK	- 0
L1.102	OFF	077F	081F	Auto	Cool	OK	# 0
L1.103	OFF	087F	082F	Low	Auto	OK	# 0
L1.104	ON	066F	074F	Med	Fan	OK	- 0
OK							

And now link them to "HDL AC No" as shown in example below:

- Co	olMaster<>HDL [Data Transfer										<u> </u>			
Basic	Information CoolMast	er<>BUS													
De	vice														
	Device:	18-52-SB-MCM	(CoolMasterNet)				HDL AC r	no. 1		Co	oMaster Address:	1			
Co	olMaster<>HDL Bus														
	HDL AC No.(64	4 at most):		1	То	3	_	✓ Yes							
		Enable	Bernark		CM Surface ID	CM Group ID	Cooling Mode	Heating Mode	Eso Mode	Auto Mode	Auto Wood	Link Word	Madkim Ward	Low Wood	
1	1	Valid	L1.100		1	0	Cooling house ▼	reacing mode	Fall Mode	Addomode	HULOWING				-
2	2	Valid	L1.101		1	1	~	7	- E			7	~	~	
3	3	Valid	L1.102		1	2	v	~				~	~	~	
						Save				Exit					
					L					L.M.					
_		Caller	alar of the Print												
		CoolMa	ster<>BUS												

To store linkage click "Save" button. The linkage will be as following:

HDL AC 1 - Indoor Unit L1.100 HDL AC 2 - Indoor Unit L1.101 HDL AC 3 - Indoor Unit L1.102

Linkage information is persistent and it is stored in CoolMasterNet device. Next time you reach the same window, linkage data will be read from CoolMasterNet by HDL Buspro Setup tool. You can see current linkage data stored in CoolMasterNet with **hdl** command:

>hd]	L						
Ch	AC	Valid	Remark	CA	CHFAD	AHML	
1	1	1	L1.100	L1.100	++	-+++	
2	2	1	L1.101	L1.101	++	-+++	
3	3	1	L1.102	L1.102	++	-+++	
OK							

• Now you can configure DLP panel "Air Conditioning function".

DLP Panel with AC Music Cl	ock Floor He	ating										
Basic information Key assignation	ar conditioning f	unction Floor Heating Music pa	age basic setting									
Basic information of device					Slave information Sy	nchronous Con	trol			Other function		
Subnet ID	1	Model	HDL-MPL8.4	48-FH						IR Automatic control	Sence	IR when power ON
Device ID	47				Slave ND.			Status	Frable	Control AC Running		Save
Dencerb												
Remark	KEaypad				Subnet ID			Device ID		Setup		AC Graphic
									Save			
Basic information of air-condition												
		Enable	Power ON:	Memory(Derauk)	Infrared Control			~	Edit target			Save
HVAC Subnet ID		1	AC No:	1		in the set						
HVAC Device ID		99	Туре:	NEW 💌	information all-cond	ND.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
Adjust panel temp sensor												
		· · · · · · · · · · · · · · · · · · ·	C	Save								
Test and control section												
AU power		Unlock A	iC page	Unlock								
Cooling temperature			- 25 C									
Heating temperature		0	- 21 C									
Auto temperature:			- 20 C									
DeuTemperature		r	- 20 C Now	0 0								
biy remperatore.		-	20 2 101.									
FAN speed	Low	M	Mode	Cooling								
Running Mode status		Low,FAN										
				Save								
Broadcast temp												
President franklan												
Dioadcast function	🗹 Er	nable										
Subnet ID	255	Device ID		255								
Value(255) to broadcast to all d	levices			Save								

Relation between specific DLP panel and Indoor Unit is made with fields in "Basic information on air-condition" box:

Basic information of air-condition				
Air conditioner function	Enable	Power ON:	Memory(Default)	~
HVAC Subnet ID	1	AC No:	1	
HVAC Device ID	99	Туре:	NEW	~
Adjust panel temp sensor	·	, ⁴ C	Save	

HVAC Subnet ID = 1 and HVAC Device ID = 99 leads to CoolMasterNet device. AC No = 1 leads to Indoor Unit L1.100. After this information is saved in DLP panel all HVAC operations and statuses of this panel will be sent/received to/from corresponding CoolMasterNet device and via CoolMasterNet to/from Indoor unit L1.100. **Make sure to set Type: NEW**. Same way other HDL user interface devices capable to control HVAC units can be connected to desired Indoor Units.

To represent Indoor return air temperature on DLP panel below configuration required. To reach there click "Setup" button in "Other function" box. "SubNet ID" and "Device ID" should correspond to CoolMasterNet device address."Chn ID" defines Indoor unit according to information provided by **hdl** command.

9	^	۰.	
9	ι.		
	-	•	

👑 Air-	condition collocation	n information				🛛 🛛
Temper	ature model Time type 📑	Temp Range Sensor Model Setting				
Sens	sor Model Selection					
	◯ Refer to ir	nternal Sensor				
	Refer to o	utdoor Sensor				
	O Refer to a	verage Value			Save	
			SubNet ID	Device ID	Chn ID	
	Read active	Sensor 1	1	99	1	
	Close	Sensor 2	1	1	1	
	Close	Sensor 3	1	1	1	
	Close	Sensor 4	1	1	1	
	Close	Sensor 5	1	1	1	
	Close	Sensor 6	1	1	1	
	Close	Sensor 7	1	1	1	
	Close	Sensor 8	1	1	1	

3.1 Feed temperature

It is possible to feed room temperature measured by HDL panel into linked indoor unit. To do that in "Air conditioning function" tab "Broadcast temp" setup enable "Broadcast function". "Subnet ID" and "Device ID" can specify CoolMasterNet device address or it can be a broadcast within subnet if "Device ID" is 255.

DLP Panel with AC Music Clock Floor Heating							
Basic information Button Assignment Air conditioning function Floor Heating Music page basic setting							
Basic information of device	Slave information Sun	chronous Control			Other function		
Subnet ID 1 Model HDL-MPTL14.46					B Automatic control		
	0. 10		6				
Device ID 1	Slave NU.		Status	Enable	Control AC Running	Save	
Remark New KeyPad	Submet ID		Davica ID				
	Junit		000000		Setup	AC Graphic	
Pasic information of air-condition				Save			
Air conditioner function	Induced Constant		[m]		1		
HVACS/matil)	Initialed Control			Edit target	IR emission	Save	
AL NO.	Information of air-conditi	ion target					
HVAC Device ID 99 Type: NEW		ND. Subnet ID	Device ID	Туре	Parameter 1 Parameter	2 Parameter 3	
Adjust panel temp sensor							
Jare Jare							
Test and control section							
AC power V DN Unlock AC page V Unlock							
Cooling temperature 2 21 C							
Heating temperature 2 18 C							
Auto temperature: 25 C							
Des Temperature 25 C Now 0 C							
FAN streed Merium W Mode Confirm							
Running Mode status Medium/FAN Save							
Broadcast temp							
Broadcast function							
Subnet ID 1 Device ID 255							
Value(255) to broadcast to all devices							

Not all HVAC systems support temperature feeding. Refer to CoolMasterNet documentation for information about HVAC systems supporting feed function.

4 HDL commands reference

• I i ne type L3 HDL - Enable 4-wire HDL interface module on line L3

```
• I i ne myid L3 <I D> - Change Subnet ID and Device ID in HDL 4-wire connection mode via line L3
>line myid L3 0164
OK, Boot Required!
```

• hd	hdl - list linkage data									
>hd]	-									
Ch	AC	En	Remark	CA	CHFAD	AHML				
1	1	1	L1.100	L1.100	++	-+-+				
2	2	1	L1.101	L1.101	++++-	++++				
OK										

• hdl del al l - delete all linkage data

hdl - <UI D_STRI CT> - delete specific link
 hdl - L1.100
 OK

• hdl et h - print HDL Ethernet connection status and packet counters

>hdl eth	
status	: enabled
ID	: 0x01 0x63

send cntr	:	0					
recv cntr	:	0					
crc cntr	:	0					
OK							

• hdl et h < enable | di sabl e> - Enable/Disable HDL Ethernet interface modue

hdl eth myid <I D> - Change Subnet ID and Device ID in HDL Ethernet connection mode
 hdl eth myid 0163
 OK, Boot Required!