

# HDL Integration Guidelines

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CoolMasterNet  
CooLinkBridge  
CooLinkHub

HDL Integration Guidelines



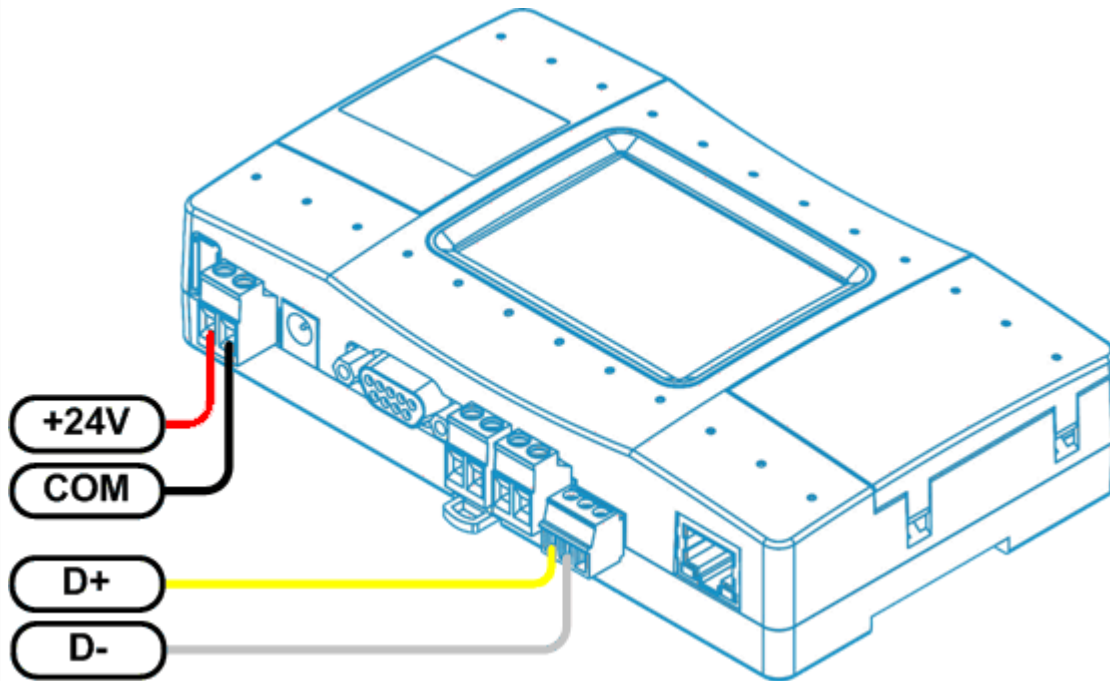
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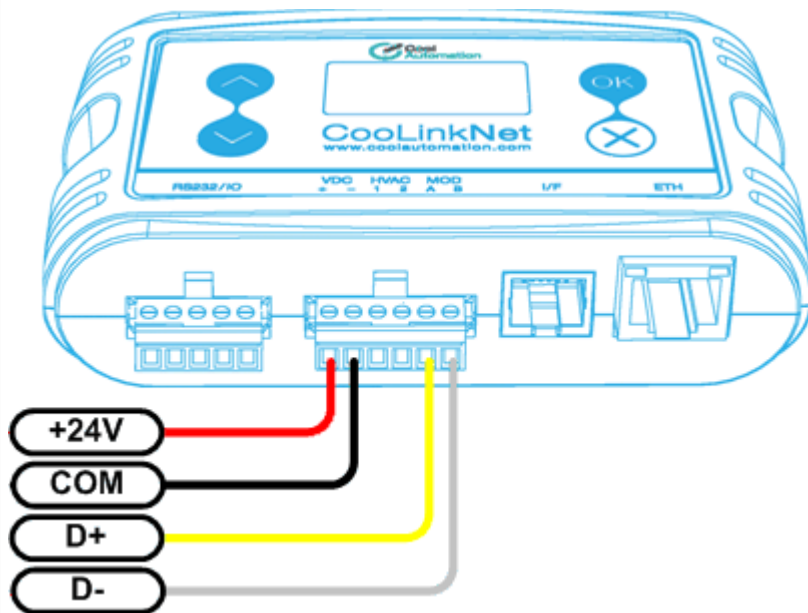
# 1 Connection

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

CoolMasterNet 4-wire connection



CoolLinkBridge, CoolLinkHub 4-wire connection





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-11P device.

## 2 Configuration

Only one connection to HDL bus may be enabled in CoolAutomation device. Simultaneous 4-wire and Ethernet connections are 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 CoolLinkBridge and CoolLinkHub Line **L3** usage for HDL 4-wire interface module is mandatory.

CoolMasterNet

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

CoolLinkBridge / CoolLinkHub

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

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

CoolMasterNet

```
>line
L1: DK Master U00/G00 myid:0B
Tx:2/2 Rx:2/2 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L2: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L3: HDL SubNetID:0x01, DeviceID:0x63
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: 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
```

CoolLinkBridge CoolLinkHub

```
>line
L1: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L2: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L3: HDL SubNetID:0x01, DeviceID:0x63
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L4: MIM2 Slave U00/G00 Not Connected
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
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
```

```
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 with CoolMasterNet and Enviro panel. Detailed information about HDL Buspro Setup tool should be obtained from the corresponding HDL documentation. In this document only basic information required for given example is provided.

- Launch the HDL Buspro Setup tool and run "Fast Search". CoolMasterNet should be detected and shown like in example below:

Status	Subnet ID	Device ID	Model	Name	Description(double click this column enter)	Version	Hardware version
✓	1	0	HDL-MBUS01IP-431		1 port switchboard	Unread	N/A
✓	1	5	HDL-MPTLC43-46		Enviro/4.3" touch panel	Unread	N/A
✓	1	99	SB-MCM	CoolMasterNet	CoolMaster<->HDL data transfer	Unread	N/A

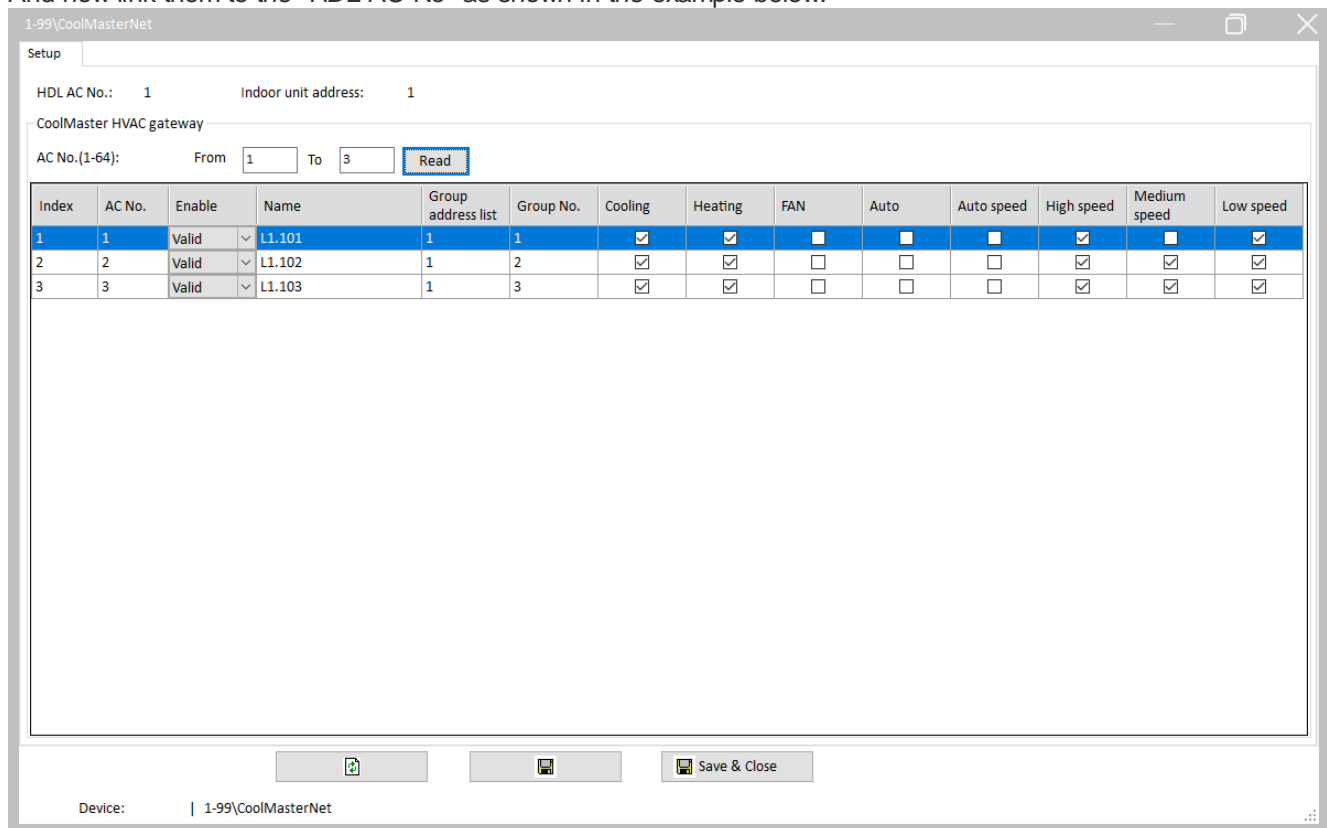
Current select ip: 192.168.16.29 Total device: 3 Online: 3 Offline: 0 Current Mode: Online mode Current setting: Buspro

Note that in this example the CoolMasterNet has a Subnet ID = 1 and Device ID = 99.

- Double click on CoolMasterNet line in the device list to open "CoolMaster <---> HDL Data Transfer" window. Here you can link between indoor units detected by CoolMasterNet and "HDL AC No". To see indoor units that CoolMasterNet has detected run **ls** 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 the "HDL AC No" as shown in the example below:



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

- HDL AC 1 - Indoor Unit L1.101
- HDL AC 2 - Indoor Unit L1.102
- HDL AC 3 - Indoor Unit L1.103

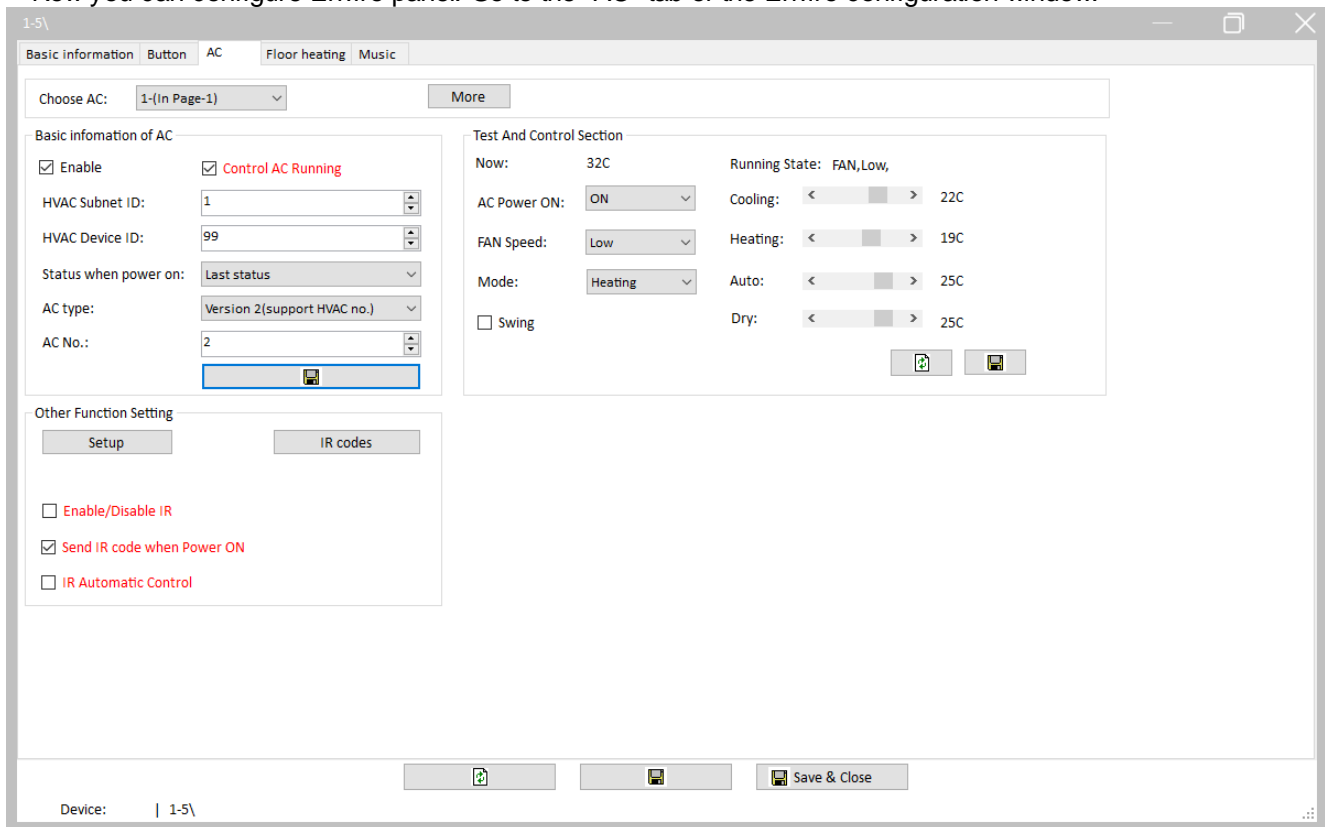
Linkage information is persistent and it is stored in CoolMasterNet device. Next time you reach the same window, linkage data will be read from CoolMasterNet by HDL Buspro Setup tool. You can see current linkage data stored in CoolMasterNet with **hd1** command:

```
>hd1
```

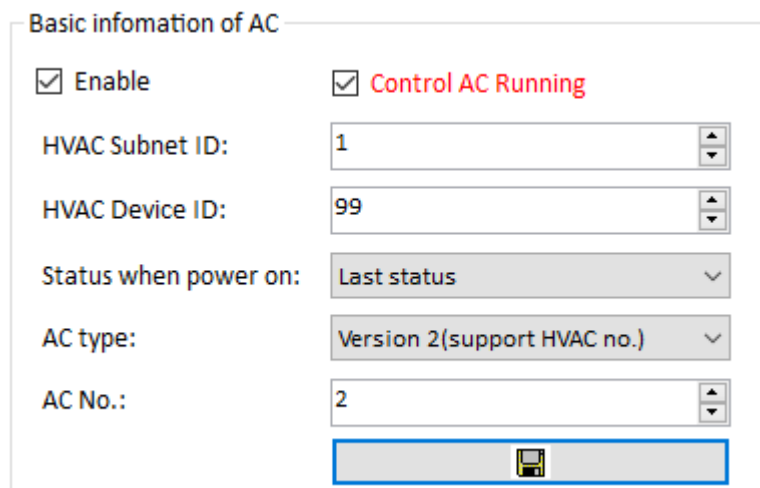
Ch	AC	Valid	Remark	CA	CHFAD	AHML
1	1	1	L1.101	L1.101	++---	-+++
2	2	1	L1.102	L1.102	++---	-+++
3	3	1	L1.103	L1.103	++---	-+++

OK

- Now you can configure Enviro panel. Go to the "AC" tab of the Enviro configuration window.



Relation between specific Enviro panel and the indoor unit is made with fields in "Basic information of air-condition" box:



HVAC Subnet ID = 1 and HVAC Device ID = 99 leads to the CoolMasterNet device. AC No = 2 leads to the indoor unit L1.102. After this information is saved in Enviro panel all HVAC operations and statuses of this panel will be sent/received to/from corresponding CoolMasterNet device and via CoolMasterNet to/from the indoor unit L1.102. **Make sure to set AC Type to "Version 2(Support HVAC no.)"**.

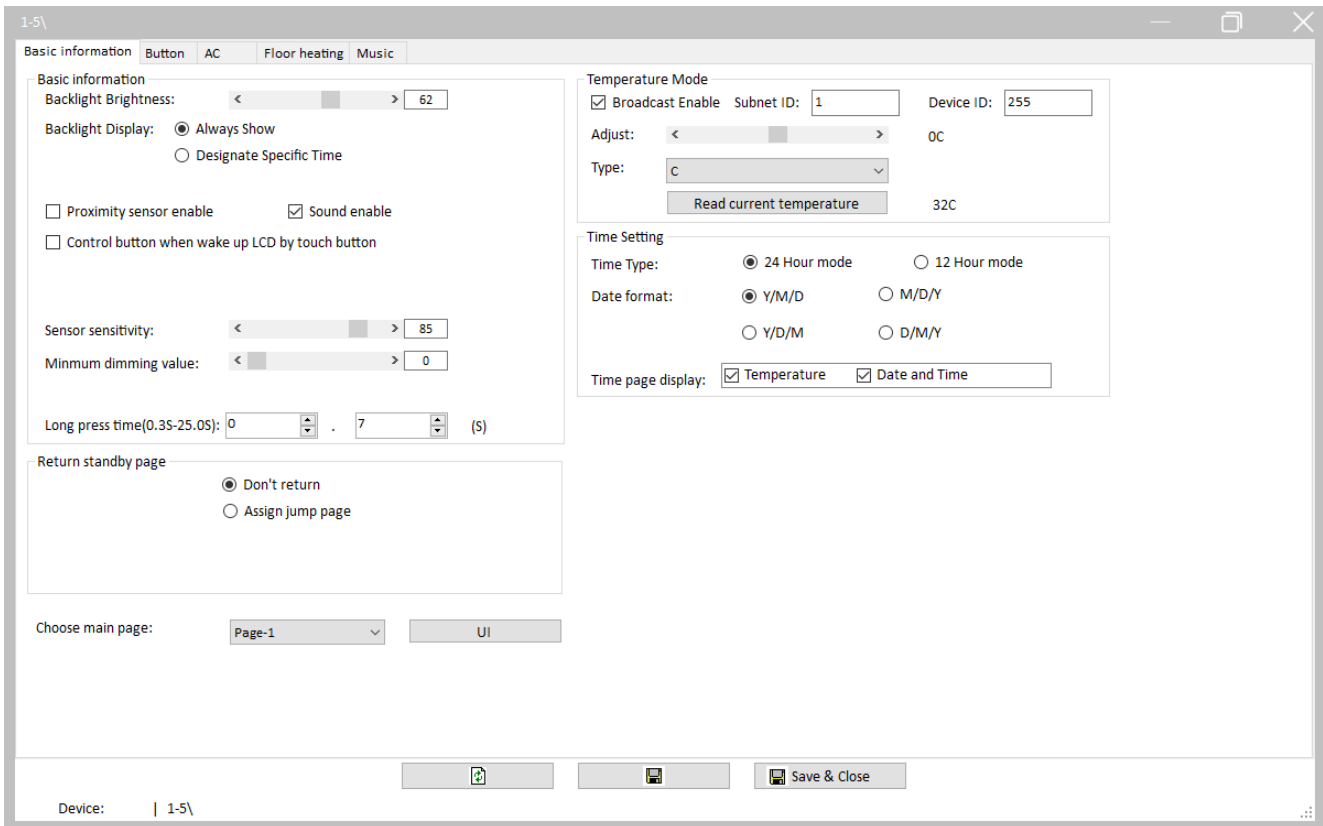
To present indoor unit air temperature on Enviro panel the special configuration is required. Click "Setup" button in "Other Function Setting" box. Select "Temperature sensor setting" tab. Make settings shown on the below picture. Channel ID must correspond to the AC No. In example below Channel ID = 2 means L1.102

	Subnet ID	Device ID	Channel ID
I: Ask Feedback	1	99	2
II: Close	255	255	255

### 3.1 Feed temperature

It is possible to feed room temperature measured by HDL panel into the linked indoor unit. To do that go to "Basic information" tab of the Enviro configuration window and make settings in "Temperature Mode" box. "Subnet ID" and "Device ID" can specify CoolMasterNet device address or it can be a broadcast within subnet if "Device ID" is 255. Temperature must be in Celsius - C.





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

## 4 HDL commands reference

- `line type L3 HDL` - Enable 4-wire HDL interface module on line L3
- `line myid L3 <ID>` - Change Subnet ID and Device ID in HDL 4-wire connection mode via line L3

```
>line myid L3 0164
OK, Boot Required!
```

- `hd1` - list linkage data

```
>hd1
Ch | AC | En | Remark | CA | CHFAD | AHML |
---|---|---|-----|---|-----|-----|
1 | 1 | 1 | L1.100 | L1.100 | +-+-- | -+--+ |
2 | 2 | 1 | L1.101 | L1.101 | ++++- | +---- |
OK
```

- `hd1 delall` - delete all linkage data
- `hd1 - <UID_STRICT>` - delete specific link

```
>hd1 - L1.100
OK
```



- `hdl eth` - 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 eth <enable|disable>` - Enable/Disable HDL Ethernet interface module

- `hdl eth myid <ID>` - Change Subnet ID and Device ID in HDL Ethernet connection mode

```
>hdl eth myid 0163
OK, Boot Required!
```