CuteLine
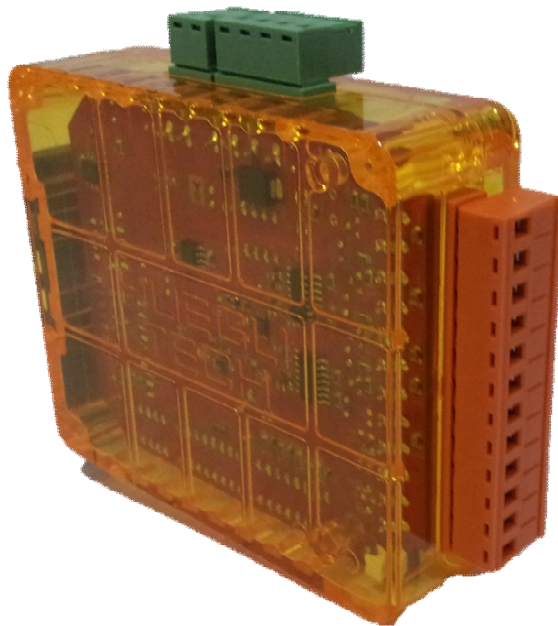
AIN8 UI - Voltage Current

Manual

Doc.-No. : CL_AIN8_UI_MN_EN_07.2012

Version : 1.1

Date of Issue : 17.12.2012

HUEGLI TECH Switzerland

HUEGLI TECH AG (LTD)
Murgenthalstrasse 30
4900 Langenthal Switzerland
Phone: +41 62 916 50 30
Fax: +41 62 916 50 35
www.huegli-tech.com

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1   Mounting

The CuteLine modules are designed to be mounted on a 35 mm DIN Rail and can be easily attached and detached from the DIN rail.

To mount the module on the DIN rail, attached the upper portion of the module onto the DIN rail and press down the module until the hook clicks itself.

To remove the module from the DIN rail, simply unhook the lower part using a screwdriver and lift the enclosure from the DIN rail.

2   Electrical Connection

All connectors can be pulled out from the board for easier wiring.
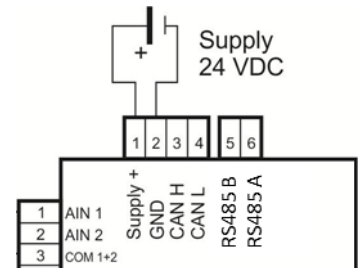
2.1   Power Supply

The nominal supply input for CuteLine AIN8 UI Module is 24 VDC power supply but it can also work from a voltage range of 7-30VDC. The green LED on the front is turned on when the device is connected to the power supply. The supply input is reverse polarity protected.

2.2   Sensor Connection

For each of the 8 analogue inputs, signal of 0-10 V or 0/4-20 mA can be connected. The + signal must be connected to AINx (for example AIN1) and the – signal must be connected to COM x+y (for example COM 1+2 if AIN 1 or AIN 2 is used).

With DIP Switch 1(DP SW1), the type of input is selected. Each of the 8 poles of DP SW1 are assigned to the corresponding input.

If the sensors are connected according to the picture shown on the right, DIP SW1 must be configured as follow:

DIP SW1:1   OFF
DIP SW1:5   ON
DIP SW1:8   ON
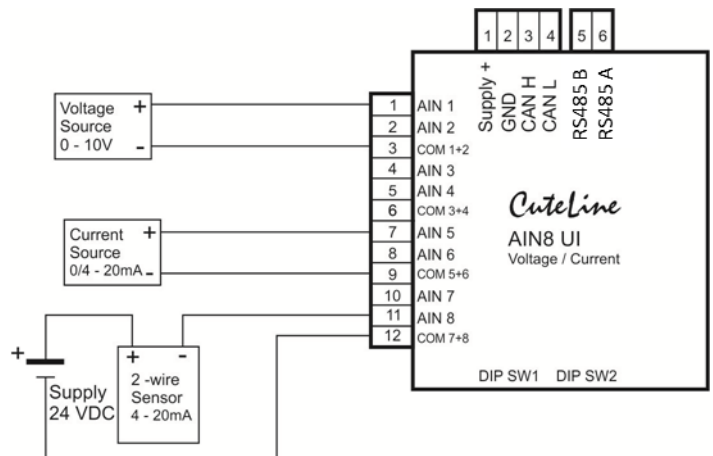
Note: Unused inputs must be connected to its corresponding COM x+y and the corresponding DIP switch must be OFF.

3   Serial Connection

The CuteLine AIN8 UI Module provides two kinds of serial connection:

CAN Bus   **Various Protocols**
RS485   **Mod Bus RTU**
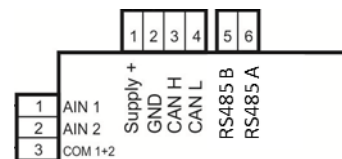
3.1   CAN Bus Connection

Using the CAN Bus connection, the bus cable must be connected to the terminals Can H(igh) and Can L(ow). If the module is the first or the last device in the bus, a termination resistor is required. There is a built-in resistor (120 Ohms) which can be activated by switching DIP SW2:8 to ON position. Shielded cable (for example, HELUKABEL CAN BUS 2x0.22) must be used for the CAN Bus connection.

Recommended Wiring
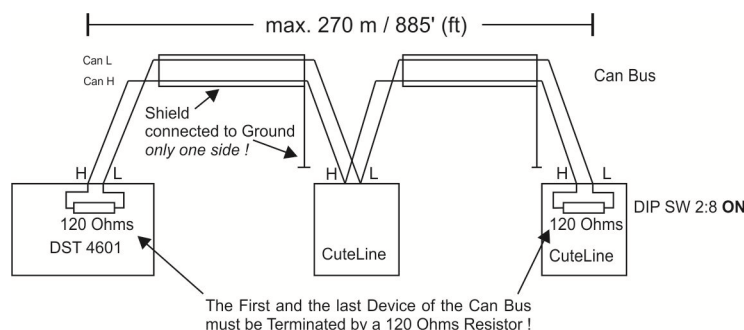
3.2   Can Bus Connection to IG-NT / IS-NT

If the device is connected to IG-NT / IS-NT, the address setting (DIP SW2) in the CuteLine module must be similar to the setting in the Controller. In the GenConfig, the CuteLine devices should be selected as a Generic Extension -> AI (generic).
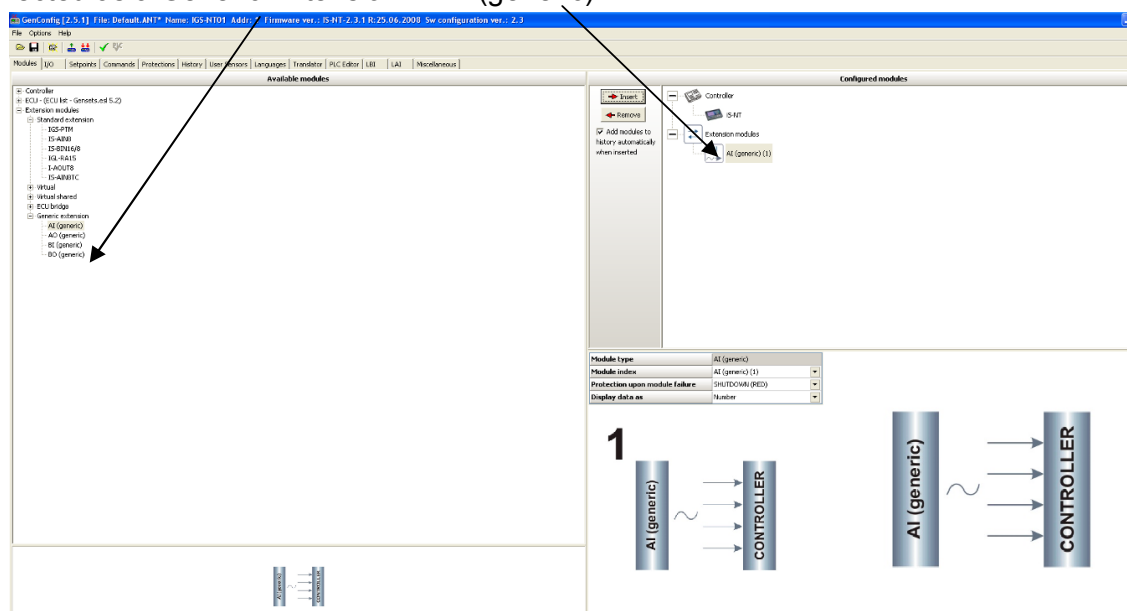
Sensors that can be configured in GenConfig that supports this module include 0-10V, 0-20mA and 4-20mA.

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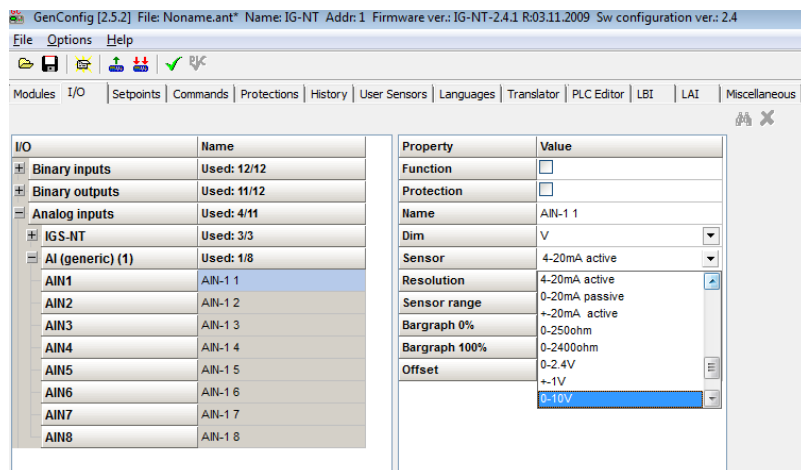
Address Settings for IG-NT / IS-NT Mode
DIP Switch 2

Address	SW2:1	SW2:2	SW2:3	SW2:4	SW2:5	SW2:6	SW2:7
1	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	OFF	ON	OFF	OFF	OFF	OFF	OFF
4	ON	ON	OFF	OFF	OFF	OFF	OFF
5	OFF	OFF	ON	OFF	OFF	OFF	OFF
6	ON	OFF	ON	OFF	OFF	OFF	OFF
7	OFF	ON	ON	OFF	OFF	OFF	OFF
8	ON	ON	ON	OFF	OFF	OFF	OFF
9	OFF	OFF	OFF	ON	OFF	OFF	OFF
10	ON	OFF	OFF	ON	OFF	OFF	OFF
11	OFF	ON	OFF	ON	OFF	OFF	OFF
12	ON	ON	OFF	ON	OFF	OFF	OFF
13	OFF	OFF	ON	ON	OFF	OFF	OFF
14	ON	OFF	ON	ON	OFF	OFF	OFF
15	OFF	ON	ON	ON	OFF	OFF	OFF
16	ON	ON	ON	ON	OFF	OFF	OFF

HINT
Any changes on the address settings (DIP SW2:1 to SW2:7) are valid only after Power Down Reset.

3.3 Can Bus Connection to HT Controller (DST Mode)

If the device is connected to HT Controller, the address setting (DIP SW2) in the CuteLine module must be similar to the setting in the Controller. In the BoardPrg, the CuteLine devices must be selected as DIVIT.
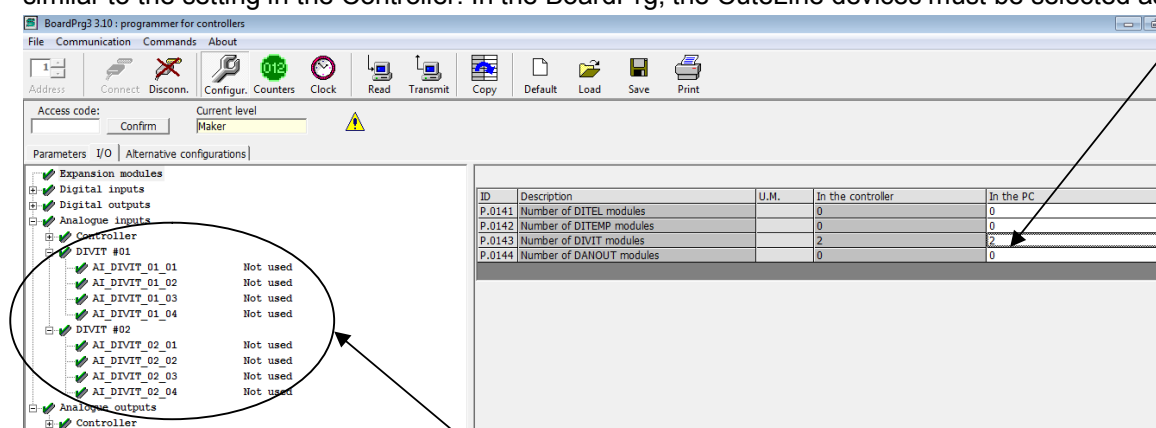
The module covers automatic two DIVIT addresses because on one DIVIT address as there are only 4 (DIVIT) input channels that are configurable.

Note: In DST Model, Yellow LED on the front is blinking when data are sent out.

Address Settings for DST Mode
DIP Switch 2

Address	SW2:1	SW2:2	SW2:3	SW2:4	SW2:5	SW2:6
DIVIT #01 + #02	OFF	OFF	OFF	*	ON	OFF
DIVIT #03 + #04	ON	OFF	OFF	*	ON	OFF
DIVIT #05 + #06	OFF	ON	OFF	*	ON	OFF
DIVIT #07 + #08	ON	ON	OFF	*	ON	OFF
DIVIT #09 + #10	OFF	OFF	ON	*	ON	OFF
DIVIT #11 + #12	ON	OFF	ON	*	ON	OFF
DIVIT #13 + #14	OFF	ON	ON	*	ON	OFF
DIVIT #15 + #16	ON	ON	ON	*	ON	OFF

* unused

HINT
Any changes on the address settings (switches SW2:1 to SW2:6) are valid only after a Power Down Reset

3.4 Mod Bus RTU Connection

When working in this mode, the CuteLine AIN8 UI Module works as a Mod Bus Slave so the Master has to request data from it. The connection must be on the terminals RS485A and RS485B. If the module is the last device in the bus, an external 120 Ohms termination resistor must be added.
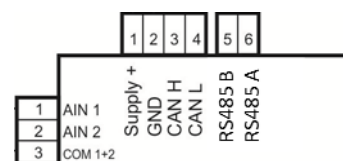
Recommended Wiring
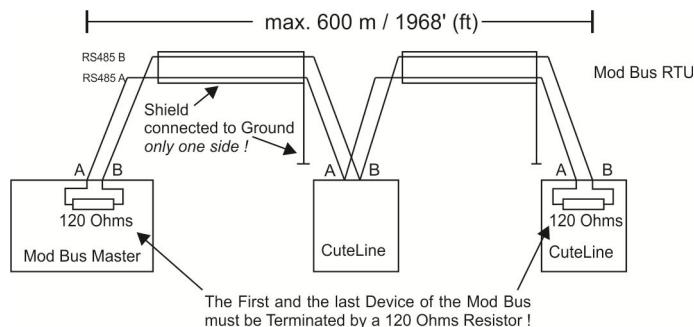
There are fixed object numbers for the 8 analogue inputs :

30001 AIN 1	*30002 AIN 2*	*30003 AIN 3*	*30004 AIN 4*
30005 AIN 5	*30006 AIN 6*	*30007 AIN 7*	*30008 AIN 8*

The Master can read a single or several objects by using the command *04*.
The transmitted values are scaled 0-10000 for 0-10 V / 0-20 mA signal.

The communication settings are 9600 / 19200 Baud (depending on DIP SW2:5), 8 Bit, 1 Stop Bit, No Parity.
The yellow LED on the front is blinking when data are sent out after a request from the Master.

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Address Settings for Mod Bus RTU Mode
DIP Switch 2

Address	SW2:1	SW2:2	SW2:3	SW2:4	SW2:5	SW2:6	SW2:7
1	OFF	OFF	OFF	OFF	*	ON	OFF
2	ON	OFF	OFF	OFF	*	ON	OFF
3	OFF	ON	OFF	OFF	*	ON	OFF
4	ON	ON	OFF	OFF	*	ON	OFF
5	OFF	OFF	ON	OFF	*	ON	OFF
6	ON	OFF	ON	OFF	*	ON	OFF
7	OFF	ON	ON	OFF	*	ON	OFF
8	ON	ON	ON	OFF	*	ON	OFF
9	OFF	OFF	OFF	ON	*	ON	OFF
10	ON	OFF	OFF	ON	*	ON	OFF
11	OFF	ON	OFF	ON	*	ON	OFF
12	ON	ON	OFF	ON	*	ON	OFF
13	OFF	OFF	ON	ON	*	ON	OFF
14	ON	OFF	ON	ON	*	ON	OFF
15	OFF	ON	ON	ON	*	ON	OFF
16	ON	ON	ON	ON	*	ON	OFF

HINT
Any changes on the address settings (switches SW2:1 to SW2:7) are valid only after a Power Down Reset

* = Baud Rate Selector
OFF = 9600 Baud
ON = 19200 Baud

3.5 Sensor type setting when using HT Controller or Mod Bus RTU

When using a connection to HT Controller or Mod Bus RTU in standard setup, only 0-10V and 0-20mA sensors can be connected to the device. With the software **CuteLine Configuration,** the module can be configured to use 4-20mA sensor. Latest version of the software can be downloaded from http://www.huegli-tech.com/

To start the configuration, switch off the module and set the DIP SW2 to these positions:
Error! Not a valid link.

Connect the PC/Laptop to the module:
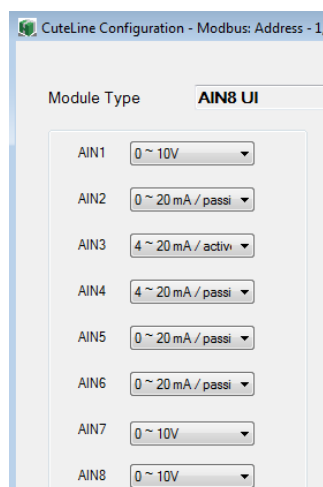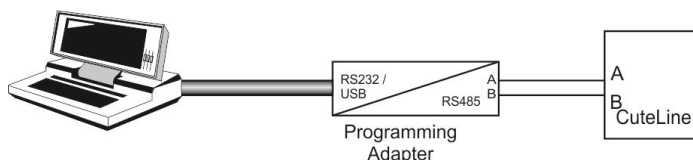
Launch the software and click on "Connect". Select the sensor type which is connected to the individual inputs and click on "Ok". If the configuration is successful, you will receive a pop up box message to notify you about it. After this is completed, click on "Disconnect" and turn off the power supply to the module. This completes the sensor type configuration process.

To resume the use of the module, put back DIP SW2 to the position of the configuration as needed and follow the instruction to the relevant chapters.

Technical Data

Power Supply ....7-30VDC, Reverse Polarity Protected

Current Consumption ....35 mA with 24VDC Input @ 25°C

Number of Inputs ....8, Non-Isolated

Sensor Types/Range   Input Current 0-20mA/ 4-20mA
                      Input Voltage .... 0 – 10V

Accuracy .... 0.5% of Full Scale @ 25°C

Calibration ....Factory Calibrated

Communication Supported Protocols ....Can Bus IS/IG
....Can Bus HT Controller
....Mod Bus RTU

Operational Temperature ....-40 to +85 ^{o}C (-40 to +185°F)

Storage Temperature ....-40 to +85 ^{o}C (-40 to +185°F)

Relative Humidity...5 to 95%, Non-condensing

Dimension(Including Terminal blocks)..30 x 110 x 94 mm

Weight(Including Terminal blocks)... 190g

Wire Size ....22 to 12 AWG

Mounting ....DIN Rail 35 mm

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