DESCRIPTION

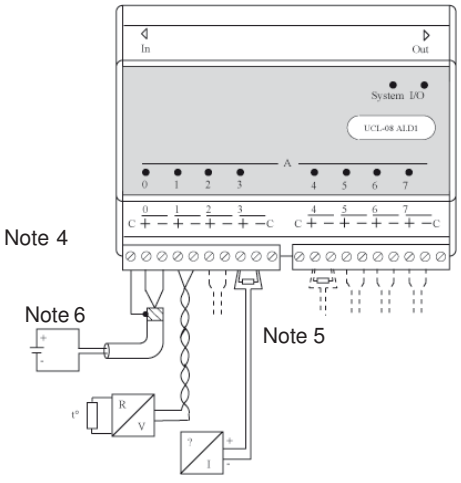
8 channel analog input expansion module for standardized process signals.

VERSIONS/ORDERING CODES

Type: UCL- 08 AI. D1

Expansion module	UCL
Analog input/output:	
Number of inputs	
8	08
Input range	
0 - 10V/0-20mA, note 5	D1
4 - 20mA	D2
0 - 5V	D3
-5V - 0 - +5V	D4
-10V - 0 - +10V	D5
0 - 20mA	D6

WIRING DIAGRAM



TECHNICAL DATA

Inputs: 8 multiplexed analog channels

Input configuration: Differential (+/ -).

Input measuring ranges:

Type no.	Voltage input	Current input
code		
.D1	0-10V	0-20mA
.D2		4-20mA
.D3	0-5V	
.D4	-5V - 0 - +5V	
.D5	-10V - 0 - +10V	
.D6		0-20mA

Resolution: 12 bit (note 2).

Input impedance: Voltage: 100kOhm
Current: D1: 500Ohm (note 5)
D2/D6: 100Ohm

Absolute maximum ratings (note 1):

Input voltage: ±40V DC
Input current: ±30mA DC

Conversion time: Max.0.4ms per channel (note 3).

Update time (all channels): Max.: 0.5ms + 8 x local scan interval.

Measuring accuracy voltage: ±0.2% ±4LSB (typical0.05%±1LSB)
Measuring accuracy current: ±0.2% ± 4LSB (typical 0.1% ± 2LSB).

Linearity: Better than ± 1LSB.

Temperature stability: Better than ± 25ppm/°C (typical).

Common mode input voltage: Max. ±13V DC (note 4).
Common mode rejection ratio: Min. 60dB (typical 72dB).

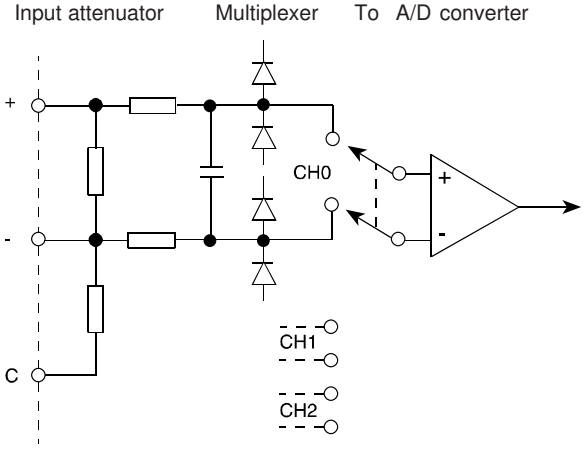
Isolation (input to electronics): 500V DC extented 3kV (note 4).

Indicators: One (red) for each channel indicating input active. (note 3).

Current consumption (12V): Max. 180mA.

Ambient temp.: -40 - +65 Deg Celsius

CIRCUIT CONFIGURATION



NOTES/REMARKS:

1) Input signals exceeding the maximum values **MAY CAUSE PERMANENT DAMAGE** to the module.

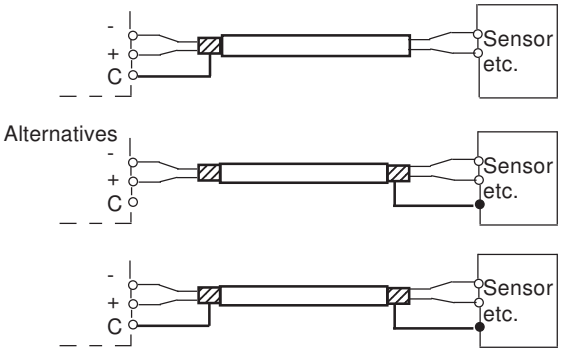
2) The value in the PC (or PLC) is represented by an integer (binary number) from 0 to 4095 depending on the input signal, see table below.

4) The individual inputs are not isolated from each other.
The voltage measured from the common (C) terminal to any other terminal may not exceed ± 13V. High isolation 3kV must be stated at order, standard is 500V
The 4 common (C) terminals are internally connected.

5) External resistor (500Ohm) to be mounted for 0 - 20mA input.
Note: The parallel internal resistance (Ri) has to be added and compensated out in the application software.

6) Depending on the noise level versus signal level, shielded cables and/or twisted pairs might be necessary.
The shield of the cable should normally be connected to common (C) of the modules. Unfortunately no general rule can be given, only experiments in the actual application can give the best solution to noise problems.

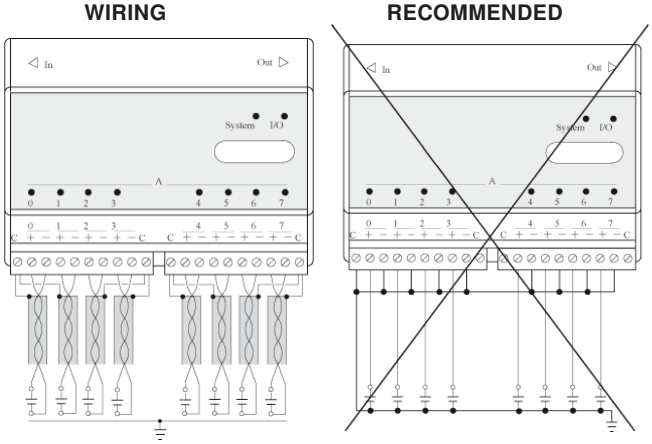
RECOMMENDED SOLUTION



PLEASE NOTE that common paths (ground or signal) should be avoided. Please also note that signal ground and safety ground are two entirely different subjects.

RECOMMENDED WIRING

ABSOLUTELY NOT RECOMMENDED



INPUT TABLE

Integer (binary value) = $\frac{\text{Input - range MIN}}{R}$,

where R is the resolution (LSB).

Input range						Integer (Binary-code)
0-10V	0-5V	-5V-0 - +5V	-10V-0 - +10V	0-20mA	4-20mA	
Input [V]				Input [mA]		
<0	<0	<-5	<-10	<0	<4.0	0
0	0	-5	-10	0	4.0	0
1	0.5	-4	-8	2	5.6	410
2	1.0	-3	-6	4	7.2	819
3	1.5	-2	-4	6	8.8	1229
4	2.0	-1	-2	8	10.4	1638
5	2.5	0	0	10	12.0	2048
6	3.0	+1	+2	12	13.6	2457
7	3.5	+2	+4	14	15.2	2867
8	4.0	+3	+6	16	16.8	3276
9	4.5	+4	+8	18	18.4	3686
10	5.0	+5	+10	20	20.0	4095
>10	>5.0	>+5	>+10	>20	>20.0	4095
2.442mV	1.221mV	2.442mV	4.884mV	4.884uA	3.907uA	Resolution