DESCRIPTION

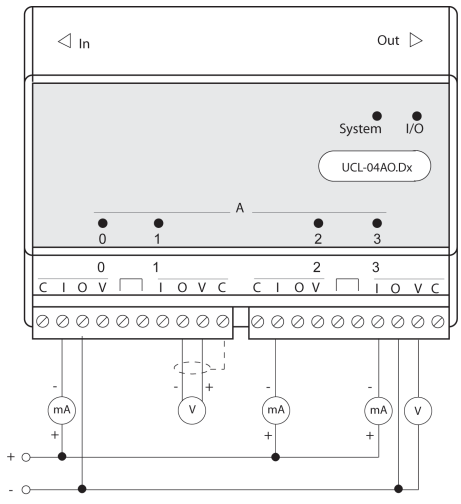
4 Channel analog output expansion module for standardized process signals.

VERSIONS/ORDERING CODES

Type: UCL- 04 AO . D1

Expansion module	UCL
Analog input/output: **Number of outputs** 4	04
Output range	
0 - 10V/0 - 20mA	D1
0 - 10V/4 - 20mA	D2
0 - 5V/0 - 20mA	D3
-5V - +5V/0-20mA	D4
-10V - +10V/0 - 20mA	D5

WIRING DIAGRAM



TECHNICAL DATA

Number of outputs: 4 channels

Indicators: One (yellow) for each channel

Output configuration: Separate terminal for voltage and current output for each channel (note 1).

Resolution: 12 bit (note 5)

Output ranges:

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

Voltage output:

Output impedance:	Max. 200mohm
Output current:	Max. 5mA (note 2)
Settling time:	Typical 20us (within 0.1% FSR)
Slew rate:	Typical 5V/us
Accuracy:	Gain: ±0.3% of FSR (typical 0.1%)
	Offset: ±0.3% of FSR (typical 0.1%)
Temperature stabilty:	Better than ±30ppm/°C

Current output:

Output impedance:	Min. 5Mohm
External supply voltage:	10 - 30V DC (note 2)
External load impedance:	12V: max. 400ohm
	24V: max. 800ohm (note 3)
Settling time:	Typical 100us (within 0.1% of FSR)
Slew rate:	Typical 2mA/us
Accuracy:	Gain: ±0.7% of FSR (typical 0.2%)
	Offset: ±0.5% of FSR (typical 0.2%)
Temperature stability:	Better than ±80ppm/°C

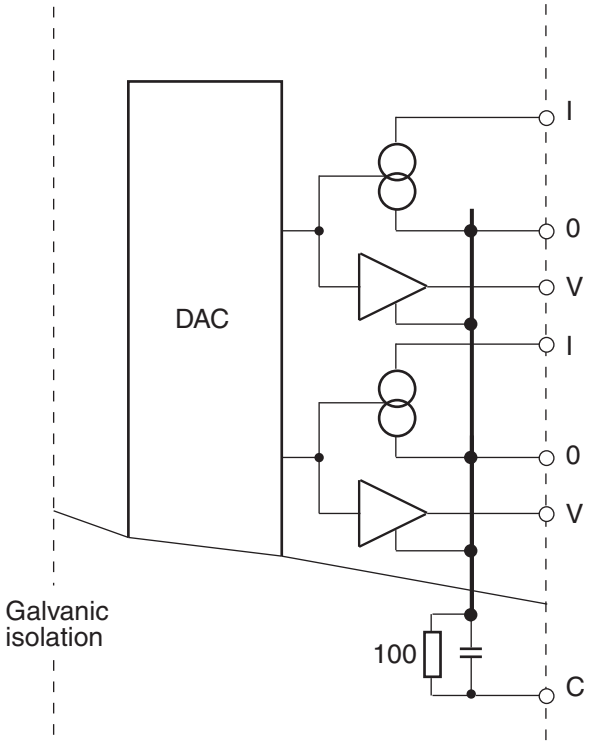
Update time (all channels): 1ms + 4 x local scan interval

Isolation (output to electronics): 500V DC

Module current consumption: Max. 300mA

Ambient temp.: -40 - 65 deg Celcius

CIRCUIT CONFIGURATION



NOTES/REMARKS

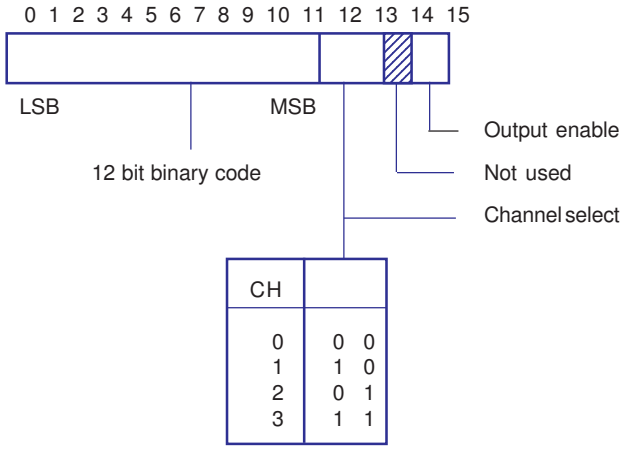
1) The output can be used for current and voltage simultaneously.

2) Currents or voltages exceeding the maximum values **MAY CAUSE PERMANENT DAMAGE** to the module.
The outputs are short circuit protected.

3) The current for a connected device must be supplied externally. The voltage must be selected to be able to fulfil the specification for the external device.
For external voltages > 20V the load impedance **MUST** be > 400 ohm.

4) All "0" and "C" terminals must be kept on the same potential as they are internally connected.
The 4 channels in the module are **NOT** isolated from each other.

5) The module is controlled by a 16 bit word as shown below.



The output values are automatically transferred one by one to the module when connected to a UCX- ... slave module.

The output value is selected by an integer 0 to 4095 (12 bit binary code).

Output value = range MIN + R x X

Where X is the digital value(0 to 4095) and R is the resolution.

When the output enable is set to "0" all outputs are set to 0mA and 0V, except 4 - 20mA output which is set to 4mA.
If an UCX-... slave module recognizes a system error the outputs are automatically disabled.

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