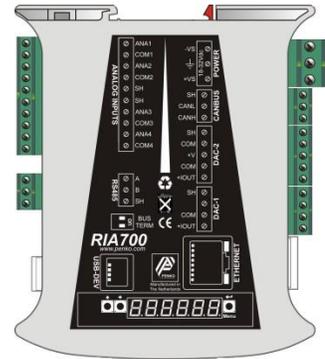


# PENKO Engineering B.V.

Your Partner for Fully Engineered Factory Solutions



How to...

Connect the RIA700 to a FLEX 2100, FLEX  
or FLEX 2ch. – 4ch.



**PENKO**

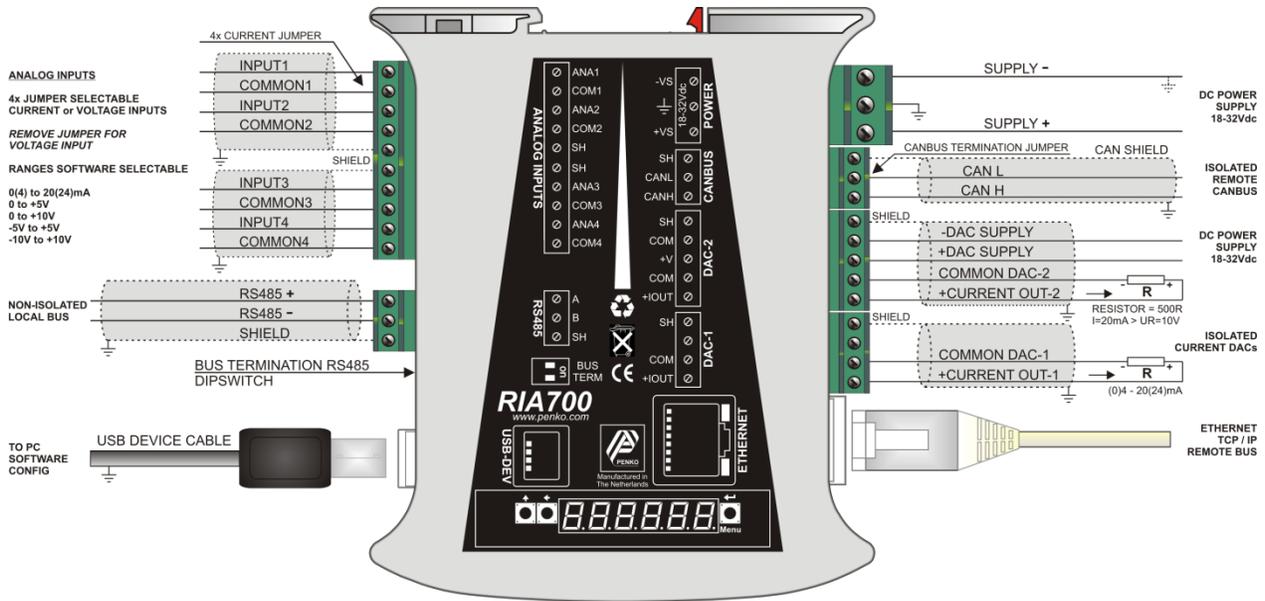
an ETC Company

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## General information

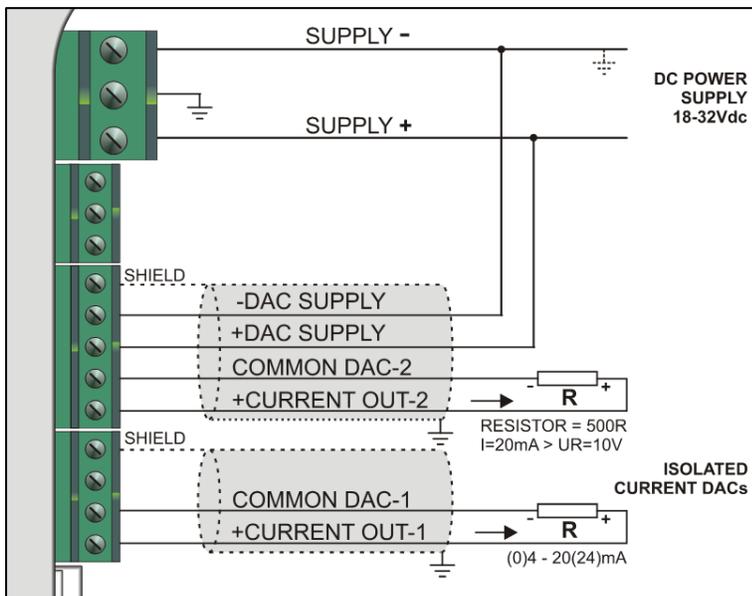
If you only connect the USB-Cable to power the RIA700 the communication ports and analog inputs and outputs will not work. The power supply via the USB-Cable is for changing parameter only.



The RIA700 can be connected to a FLEX, FLEX2100 or a FLEX 2ch. – 4ch.using the Ethernet or CAN bus connection. It is possible to connect up to 5 RIA700's using Ethernet or CAN bus.

*Note: make sure that you connect the DAC power supply otherwise the DAC outputs will not work.*

### Using the device power supply:

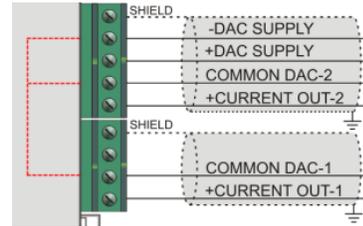


PENKO How to...

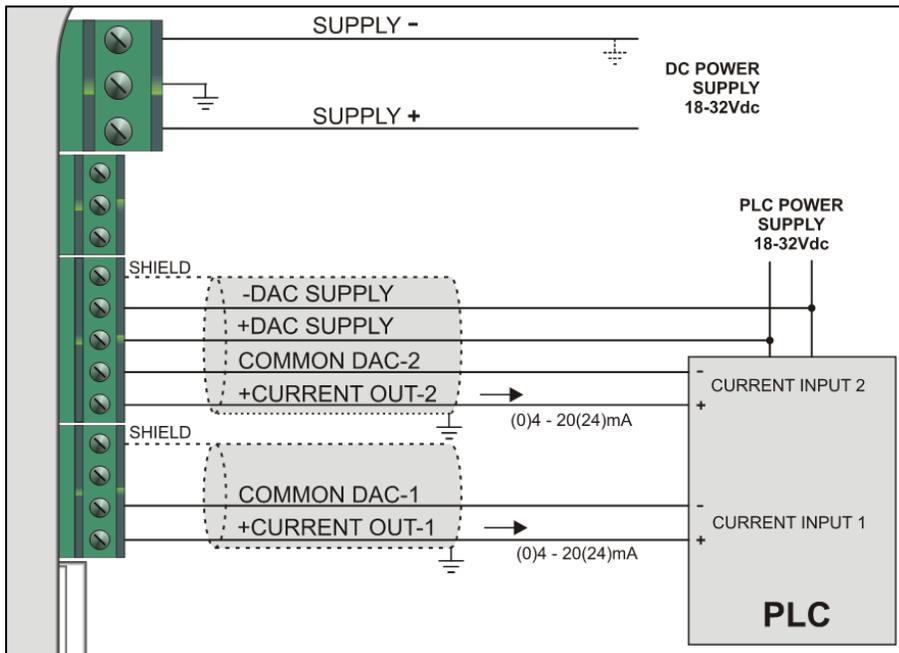
Connect the RIA700 to a FLEX 2100, FLEX or FLEX 2ch. – 4ch.



*COMMON DAC-1 and COMMON DAC-2 are internally connected to the -DAC SUPPLY. When using the device power supply for the DAC, the current loop will include the SUPPLY- of the device power supply.*



**Using an external power supply:**



In this example the current loop is isolated from the device power supply.



## Ethernet

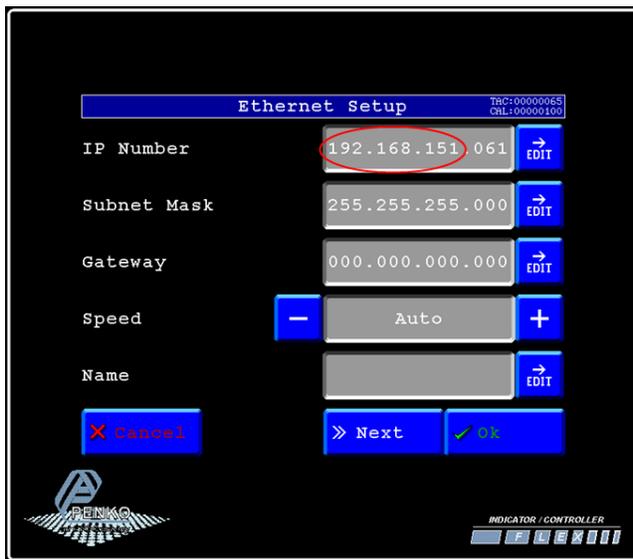
*Note: you can only use the Ethernet Buslink or the CAN bus Buslink. You cannot use the Ethernet Buslink and CAN bus Buslink at the same time.*

Use an Ethernet crossover cable to connect the RIA700 to a FLEX, FLEX2100 or FLEX 2ch. – 4ch directly, or use a switch to connect one or more RIA700's.

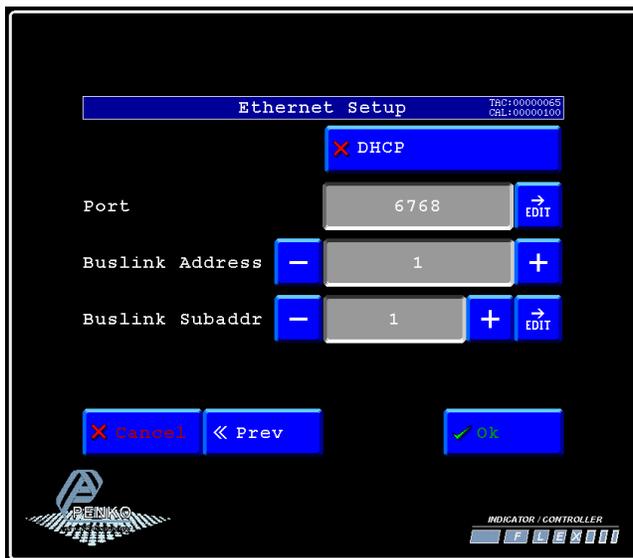
### Set up the FLEX

Go to **Menu** → **System Setup** → **Port Setup** → **Ethernet Setup**. Enter an **IP Address**.

*Note: the first 3 numbers must be the same as the RIA700.*



Now press **Next**, **Set Buslink Address** on "1" and **Buslink Subaddr** on "1". Press **OK** to save settings.



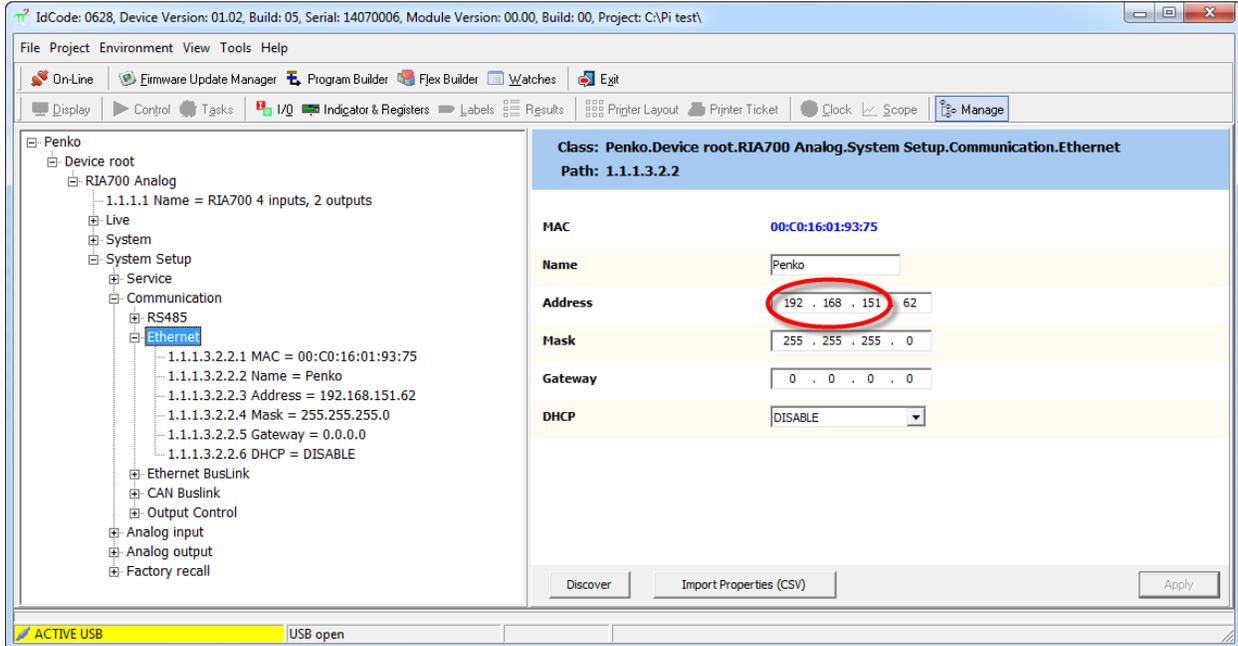
## PENKO How to...

Connect the RIA700 to a FLEX 2100, FLEX or FLEX 2ch. – 4ch.

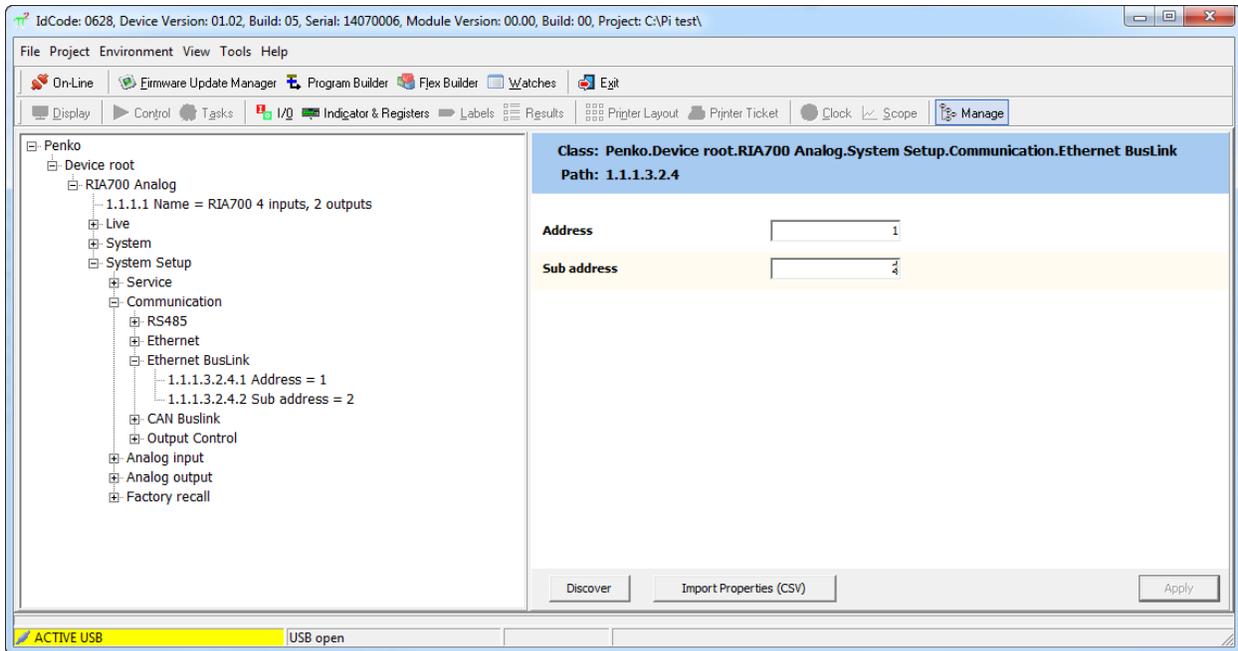
### Setup the RIA700

Connect the RIA700 to a PC using a USB-cable and open Pi Mach II and double click on **RIA700**, then double click on **System Setup**, then double click on **Communication**, then double click on **Ethernet**, set the **IP address**. Click on **Apply** to save settings.

*Note: the first 3 numbers must be the same as the FLEX.*



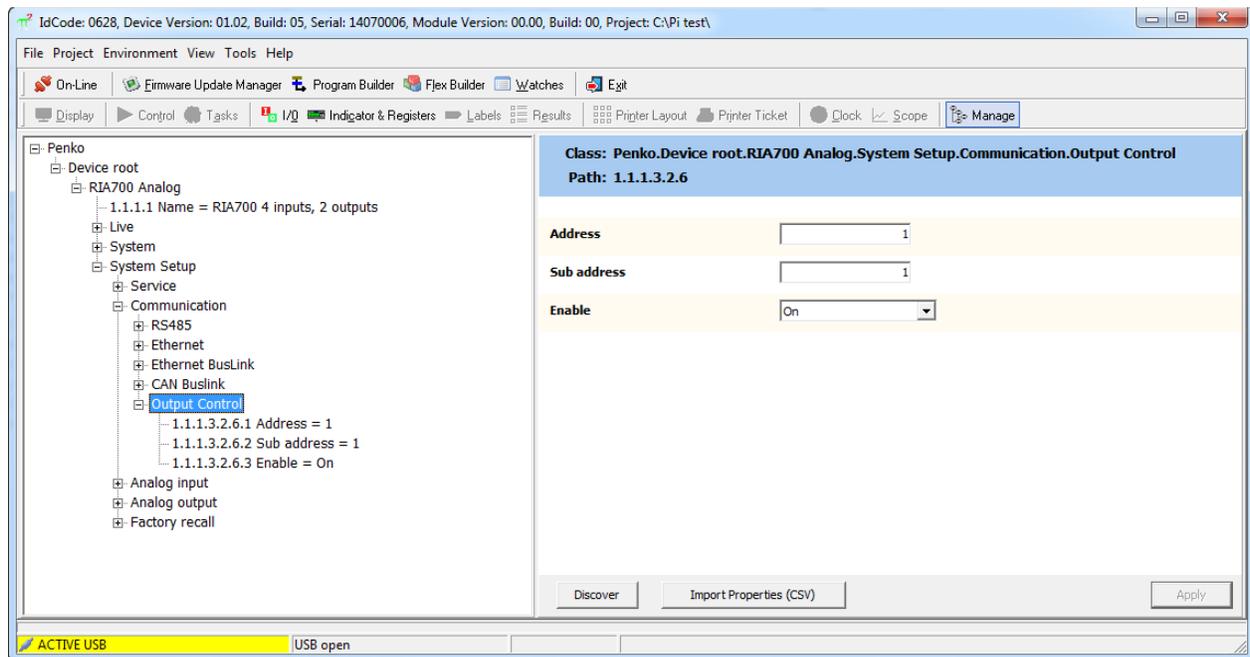
Double click on **Ethernet BusLink**. Set the address of the first SGM on **Address "1"** and the **Sub address on "2"**. Click on **Apply** to save settings.



## PENKO How to...

Connect the RIA700 to a FLEX 2100, FLEX or FLEX 2ch. – 4ch.

Double click on **Output Control** and set **Address** to “1”, **Sub address** to “1” and **Enable** to “ON”. Click on **Apply** to save settings.



If you want to connect more than one RIA700, use the following settings for the RIA700's:

Device number	Inputs			Output control		
	Ethernet Buslink			Address	Sub Address	Enable
	Address	Sub address	Inputs 1 – 4 Indicator:	Address	Sub Address	Enable
1	1	2	116-119	1	1	On
2	1	3	131-134	1	1	On
3	1	4	146-149	1	1	On
4	1	5	161-164	1	1	On
5	2	1	201-204	1	1	On

## CAN bus

*Note: you can only use the Ethernet Buslink or the CAN bus Buslink. You cannot use the Ethernet Buslink and CAN bus Buslink at the same time.*

First of all you will need to connect one or more RIA700's to the FLEX, this can be done by connecting a cable with two wires and a shield parallel (**CanH** goes to **Can-H1**, **CanL** goes to **Can-L1** and **Shield** goes to **Shield**). Place a resistor of 120  $\Omega$  between **Can-H1** and **Can-L1** of the FLEX.

Connect the RIA700's to a FLEX 2100

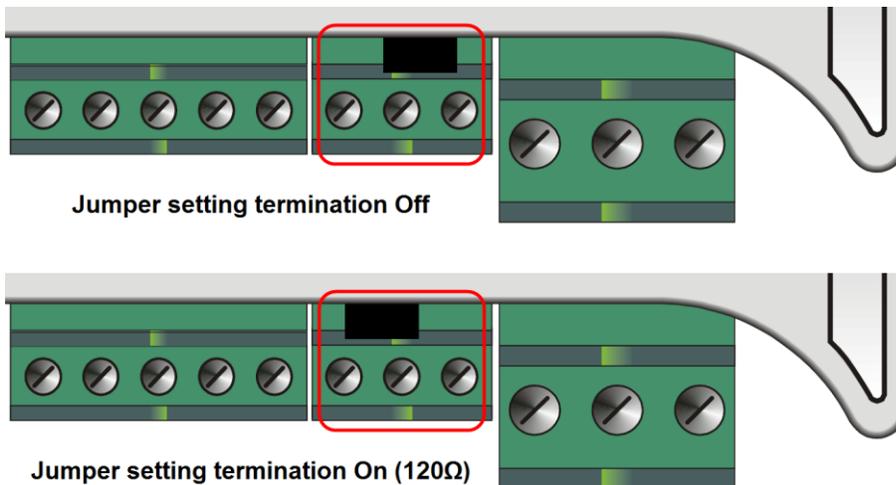
FLEX 2100		RIA700 NO:1	RIA700 No:2	RIA700 No:3
<b>CanH</b>	Connect to	CanH	CanH	CanH
<b>CanL</b>	Connect to	CanL	CanL	CanL
<b>Shield</b>	Connect to	Shield	Shield	Shield

Connect the RIA700's to a FLEX or FLEX 2ch. – 4ch.

FLEX or FLEX 2ch. – 4ch.		RIA700 NO:1	RIA700 No:2	RIA700 No:3
<b>Can-H1</b>	Connect to	CanH	CanH	CanH
<b>Can-L1</b>	Connect to	CanL	CanL	CanL
<b>Shield</b>	Connect to	Shield	Shield	Shield

Set on the last RIA700 the jumper above the CAN bus connector in termination "ON" position. This will terminate the bus. The jumper is located above the CAN bus connector.

The CAN bus termination is done with a jumper:

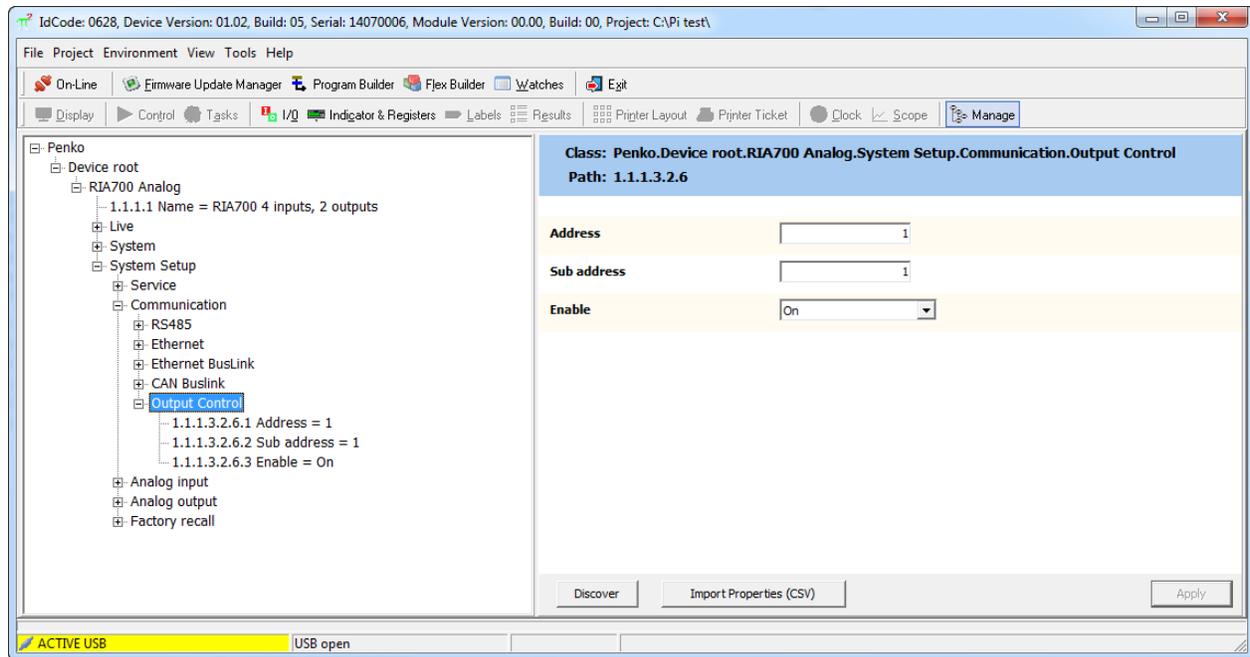




## PENKO How to...

Connect the RIA700 to a FLEX 2100, FLEX or FLEX 2ch. – 4ch.

Double click on **Output Control** and set **Address** to “1”, **Sub address** to “1” and **Enable** to “On”. Click on **Apply** to save settings. The Buslink Address and Buslink Sub address must have the same address as the FLEX if you want to connect one or more RIA700’s to your FLEX.



If you want to connect more than one RIA700, use the following settings for the Indicators:

Device number	Inputs			Output control		
	CAN bus Buslink			Address	Sub Address	Enable
Address	Sub address	Inputs 1 – 4				
			Indicator:			
1	1	2	116-119	1	1	On
2	1	3	131-134	1	1	On
3	1	4	146-149	1	1	On
4	1	5	161-164	1	1	On
5	2	1	201-204	1	1	On

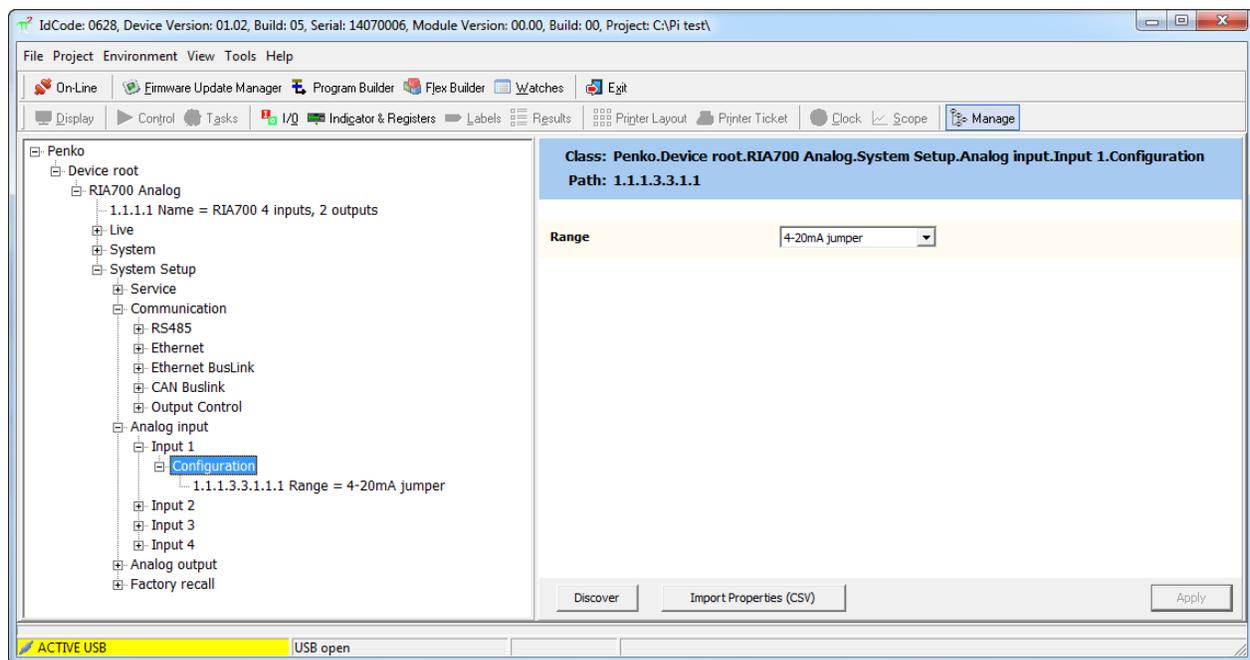
## Analog inputs

Double click on **Analog input**, then double click on **Input 1** and double click on **Configuration**. Here you can set the **Range**. Click on **Apply** to save the changes. The settings you can choose are listed below.

*Note: make sure that you set the Range the same as the device it is attached to.*

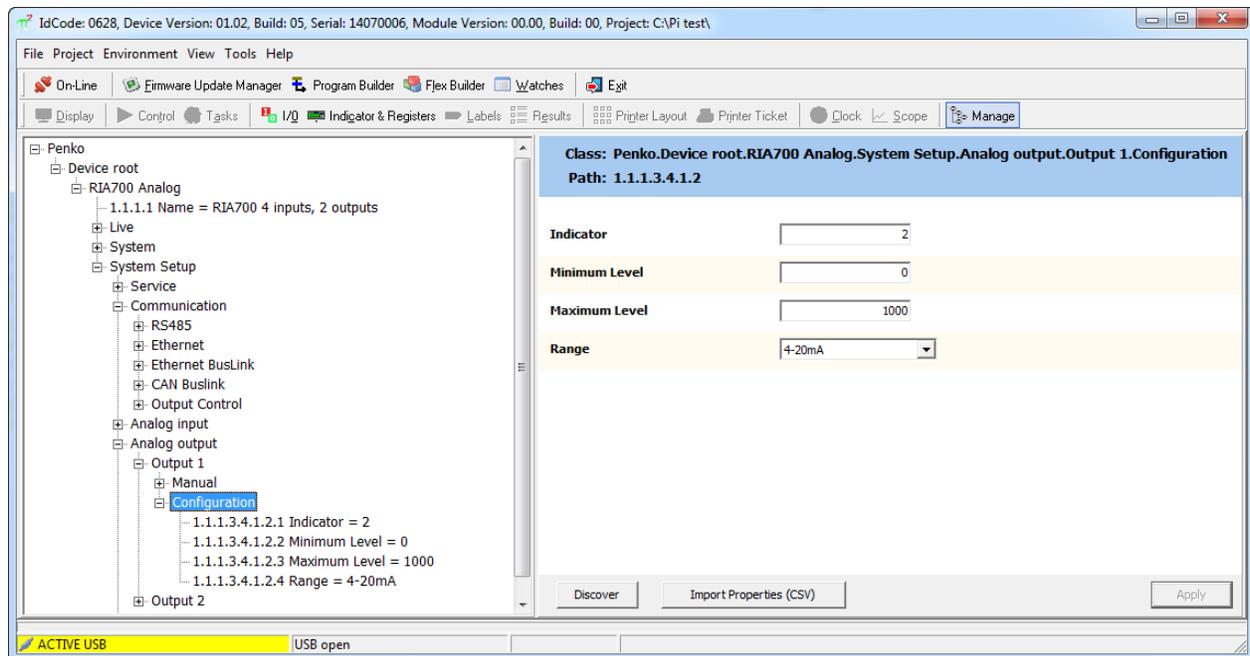
Setting	Jumper	Description
<b>RAW</b>		16 bit DAC value
<b>0 – 24 mA</b>	Yes	The minimum and maximum input of the analog input.
<b>0 – 20 mA</b>	Yes	The minimum and maximum input of the analog input.
<b>4 – 20 mA</b>	Yes	The minimum and maximum input of the analog input.
<b>4 – 24 mA</b>	Yes	The minimum and maximum input of the analog input.
<b>0 – 10 V</b>	No	The minimum and maximum input of the analog input.
<b>-10 – 10 V</b>	No	The minimum and maximum input of the analog input.
<b>-5 – 5 V</b>	No	The minimum and maximum input of the analog input.

You can set Input 2, 3 and 4 the same way as Input 1.



## Analog outputs

Double click on **Analog output**, then double click on **Output 1** and double click on **Configuration**. Here you can set the **Parameters**.



**Indicator:** The DAC output will look at this indicator.

**Minimum Level:** The DAC output will give out its lowest value at this level. (Level of Indicator 2)

**Maximum Level:** The DAC output will give out its highest value at the this level. (Level of Indicator 2)

**Range:**

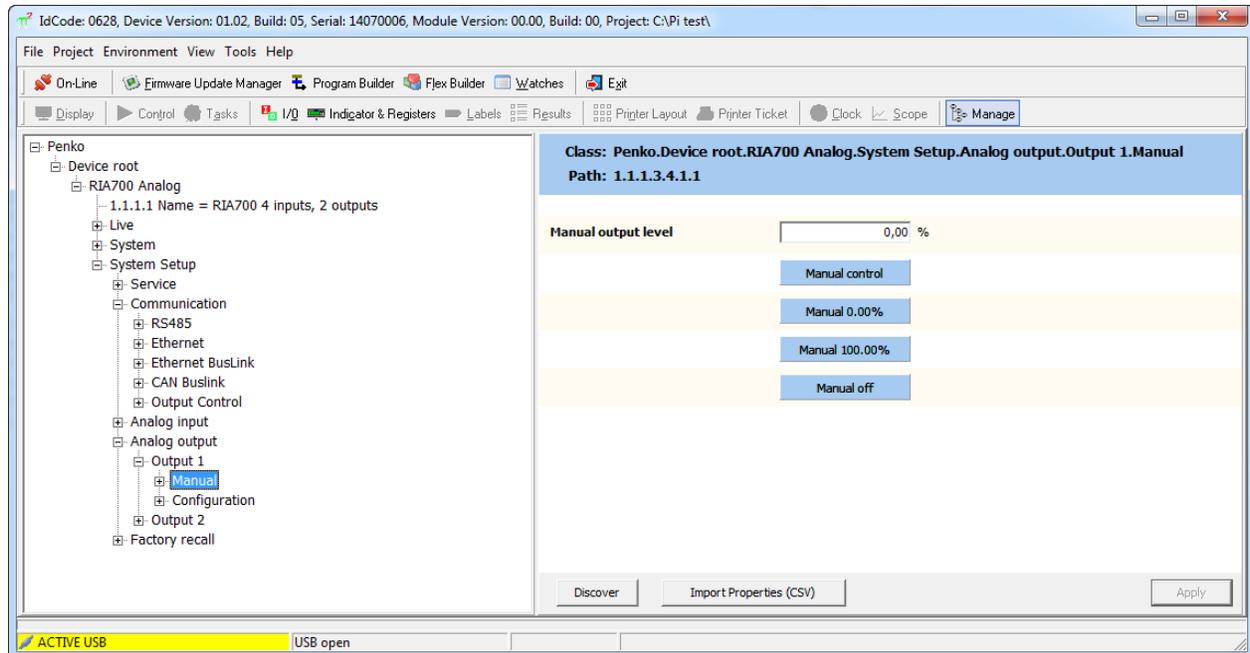
*Note: make sure that you set the Range the same as the device it is attached to.*

Setting	Jumper	Description
<b>RAW</b>		16 bit DAC value
<b>0 – 24 mA</b>	Yes	The minimum and maximum input of the analog input.
<b>0 – 20 mA</b>	Yes	The minimum and maximum input of the analog input.
<b>4 – 20 mA</b>	Yes	The minimum and maximum input of the analog input.
<b>4 – 24 mA</b>	Yes	The minimum and maximum input of the analog input.

You can set Output 2 the same way as Input 1.

## Control the DAC outputs manually

It is possible to control the DAC outputs. Double click on **System Setup**, double click on **Analog output**, then double click on **Output 1** and double click on **Manual**.



**Manual output level:** here you can set the DAC output manually in a percentage.

**Manual control:** click on **Manual control** to set the DAC output with an percentage you have set in the **Manual output level**.

**Manual 0.00%:** click on this button the set the DAC output to 0.00%

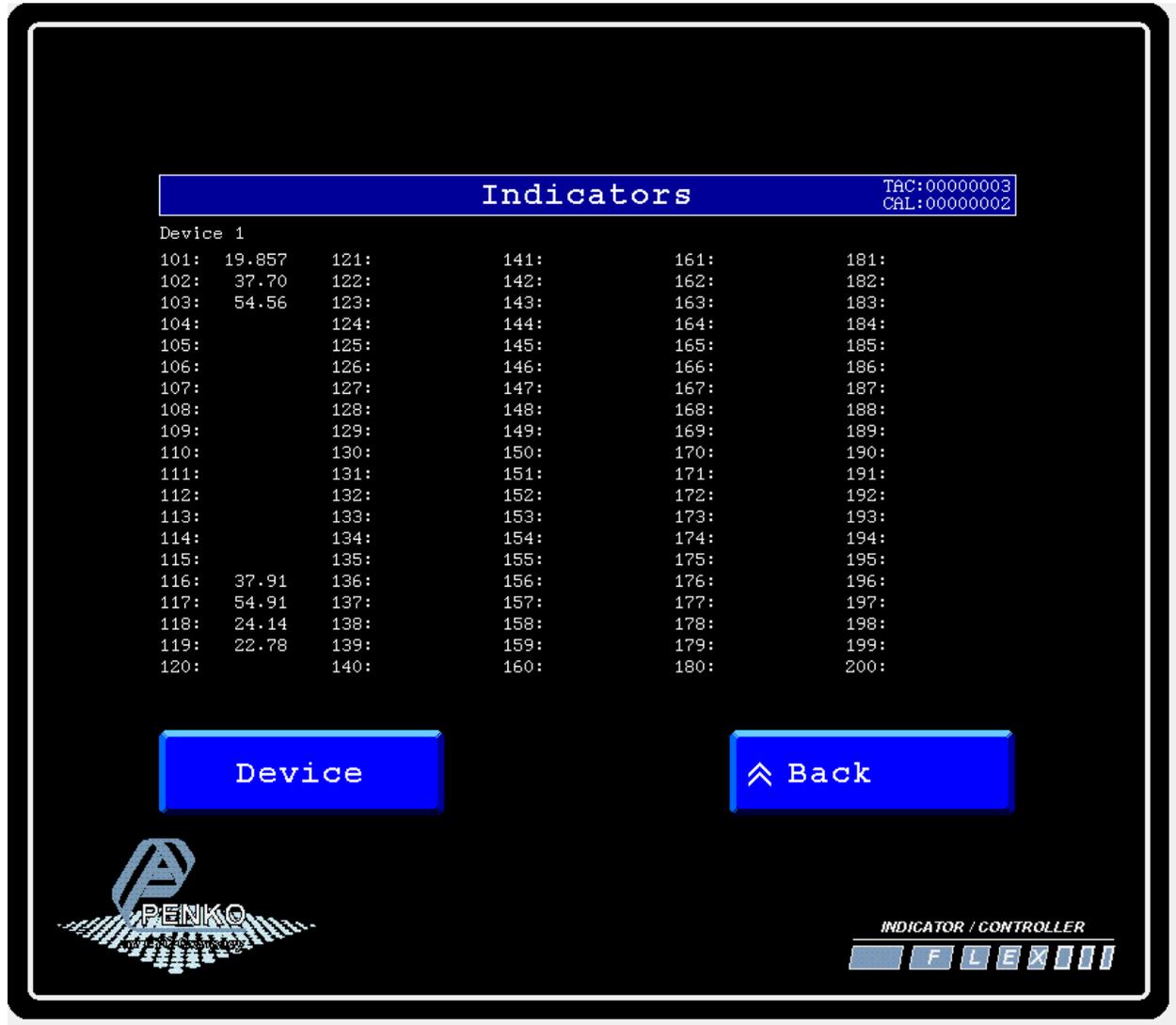
**Manual 100.00%:** click on this button the set the DAC output to 100.00%

**Manual off:** click on this button to stop the manual output, the output will now look at the selected Indicator.

## Checking the connection

To check if the connection works, use the FLEX and go to **Menu → Status → Indicators → Device**. Now you should see the 4 analog inputs from 116 to 119 if they are switched on.

The 2 analog outputs are shown at 102 and 103 (this depends which Indicators the analog outputs are following).





## About PENKO

Our design expertise include systems for manufacturing plants, bulk weighing, check weighing, force measuring and process control. For over 35 years, PENKO Engineering B.V. has been at the forefront of development and production of high-accuracy, high-speed weighing systems and our solutions continue to help cut costs, increase ROI and drive profits for some of the largest global brands, such as Cargill, Sara Lee, Heinz, Kraft Foods and Unilever to name but a few.

Whether you are looking for a simple stand-alone weighing system or a high-speed weighing and dosing controller for a complex automated production line, PENKO has a comprehensive range of standard solutions you can rely on.

## Certifications

PENKO sets high standards for its products and product performance which are tested, certified and approved by independent expert and government organizations to ensure they meet – and even – exceed metrology industry guidelines. A library of testing certificates is available for reference on:

[http://penko.com/nl/publications\\_certificates.html](http://penko.com/nl/publications_certificates.html)



## PENKO Professional Services

PENKO is committed to ensuring every system is installed, tested, programmed, commissioned and operational to client specifications. Our engineers, at our weighing center in Ede, Netherlands, as well as our distributors around the world, strive to solve most weighing-system issues within the same day. On a monthly basis PENKO offers free training classes to anyone interested in exploring modern, high-speed weighing instruments and solutions. A schedule of training sessions is found on: [www.penko.com/training](http://www.penko.com/training)

## PENKO Alliances

PENKO's worldwide network: Australia, Belgium, Brazil, China, Denmark, Germany, Egypt, Finland, France, India, Italy, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Syria, Turkey, United Kingdom, South Africa, Slovakia Sweden, Switzerland and Singapore. A complete overview you will find on: [www.penko.com/dealers](http://www.penko.com/dealers)

