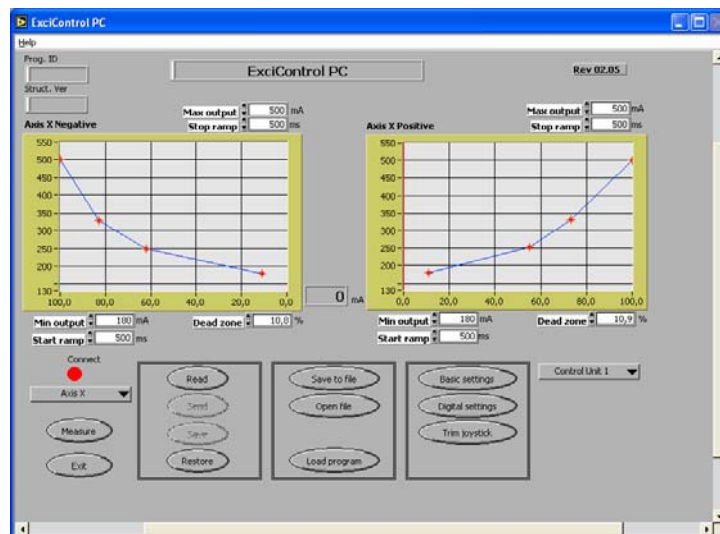
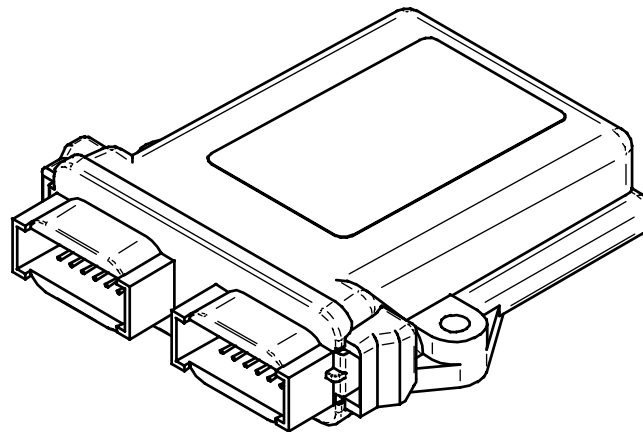


# Instruction

## Control unit ExciControl 07-10 & Software ExciControl PC





ExciControl 07-10 serial number:	0001-
ExciControl PC version:	02.05-
Instruction release:	2003-01



# ExciControl

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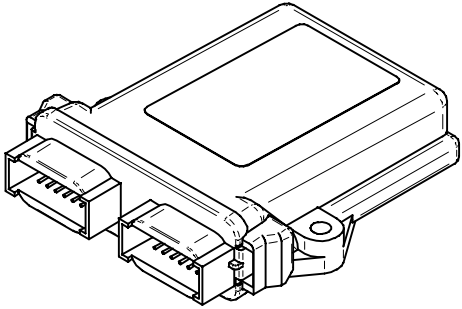
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## ExciControl 07-10 control unit

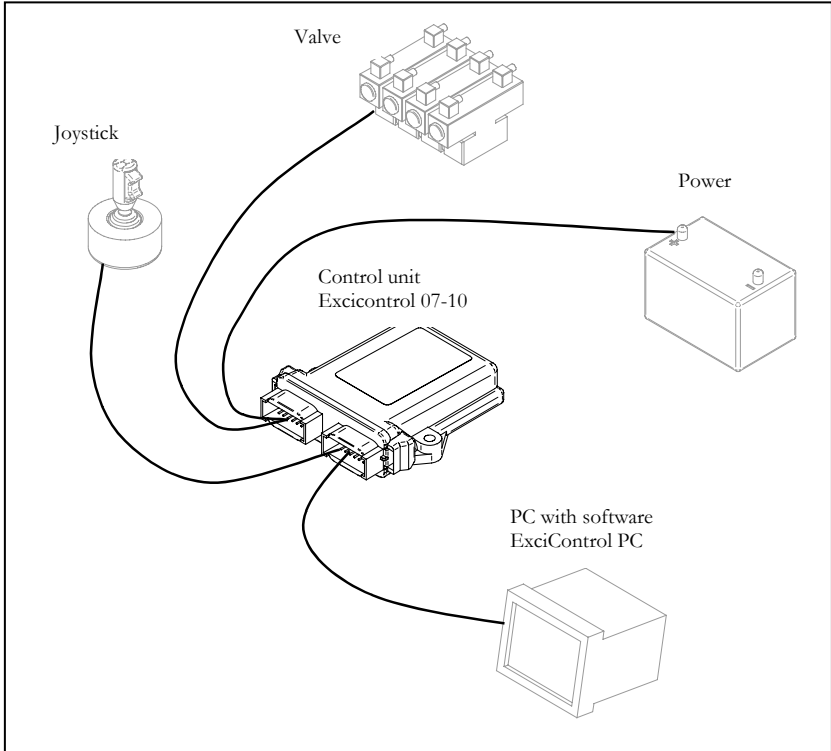


### 1 Introduction

The instruction is primarily intended for the vehicle manufacturer's design, production- and service personnel, but is also intended for use during maintenance work by the end-user. The user of this instruction, should have basic knowledge in handling of electronic equipment. In the instructions the products and their correct handling are described.

**Sections regarding safety must be read and understood by everyone using the system, carrying out service work or carrying out alterations in the system hardware or software.**

#### 1.1 System overview



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## 2 Safety regulations

### 2.1 General safety regulations.

Work on the hydraulics control electronics may only be carried out by trained personnel who are well-acquainted with the control system, the machine and its safety regulations.

Mounting, modification, repairing and maintenance must be executed in accordance with the manufacturer's regulations. Mounting, modification, repairing and maintenance is carried out on own responsibility. The manufacturer has no responsibility for any accidents caused by incorrectly mounted or incorrectly maintained equipment. Neither does the manufacturer assume any responsibility for the system being used incorrectly for the application, nor that usage of the system's functions does not jeopardize function and safety.

Damaged material may not be used. If the control system shows error functions or if electronic units, cabling or connectors are damaged, the system shall not be used until technicians have verified correct function.

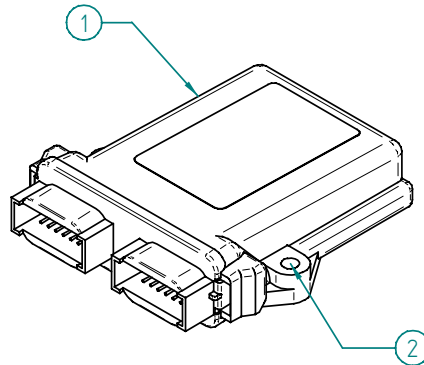
Electronic control systems in an inappropriate installation and in combination with strong electromagnetic interference fields can cause an unintentional change of speed of the output function. Causes of interference can, for example, be communication equipment in the same or a nearby vehicle.

As much as possible of the welding work on the chassis should be done before the installation of the system. If welding has to be done afterwards, the electrical connections on the system must be disconnected from other equipment. The negative cable must always be disconnected from the battery before disconnecting the positive cable. The ground wire of the welder shall be located as close as possible to the place of the welding. The cables on the welding unit shall never be placed near the electrical wires of the control system.

### 2.2 Design instructions

The vehicle must be equipped with an emergency stop which breaks the supply voltage to the control system's electrical units. The emergency stop must be easily accessible for the operator. The machine must be built so that the supply voltage is broken to the control system's electrical units when the operator leaves the control board.

### 3 Installation



#### 3.1 Mounting

When installation control system ExciControl 07-10 read the checklist below:

- Attache the control unit (1) and the joystick into the vehicle.
- The control unit should be attached by two screws using the two holes (2) on the unit.
- The control unit should be placed in a cabin where there are no risks of water getting in to the unit.
- There are no demands for diodes on the solenoids, but if there are, it will not harm the equipment.
- The emergency stop must be easily accessible for the operator.
- Main switch must be designed to switch off the power to the system.
- The machine must be built so that the supply voltage is broken to the control system's electrical units when the operator leaves the control board.
- Fuse (10A) must be attached for the power supply to the system.

#### 3.2 Wiring.

The specification of wires when mounting should be:

- Power supply  $>1,5 \text{ mm}^2$
- Ground  $> 1,5 \text{ mm}^2$
- Wire to valves (solenoids)  $>0,5 \text{ mm}^2$
- Analogue and on/off inputs  $>0,25 \text{ mm}^2$
- The system is tested with wires of a maximum length of 10m.

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## 4 Start-up

### 4.1 Safety during start-up

The machine's engine must not be started before the control system is mounted and its electrical functions have been verified. Ensure that no one is in front, behind or nearby the machine, who can be in danger, when first starting up the machine.

### 4.2 Safety during start-up

- Power on the system and connect the PC with software ExciControl PC (section 17).
- Trim joystick (section 20.1)
- Control the joystick function and read the value of the signals in your PC (section 16.1).
- Control all used on/off outputs in your PC (section 15 and 16.1).

When all controls are done and all values are ok:

- Start the vehicle, pressurize the hydraulic system and power on the electrical system.
- Make sure that all functions are working in the right direction regarding to the movement of the joysticks and control switches.
- Adjustments are made in PC with ExciControl PC software installed.

## 5 Safety during maintenance and fault diagnosis

Ensure that the following requirements are fulfilled before any work is carried out on the hydraulics control electronics:

- that the machine is turned off
- that the machine cannot start moving
- that the hydraulic system is relieved from any pressure
- that functions are positioned safely
- that the supply voltage to the control electronics is disconnected.





## 6 System overview

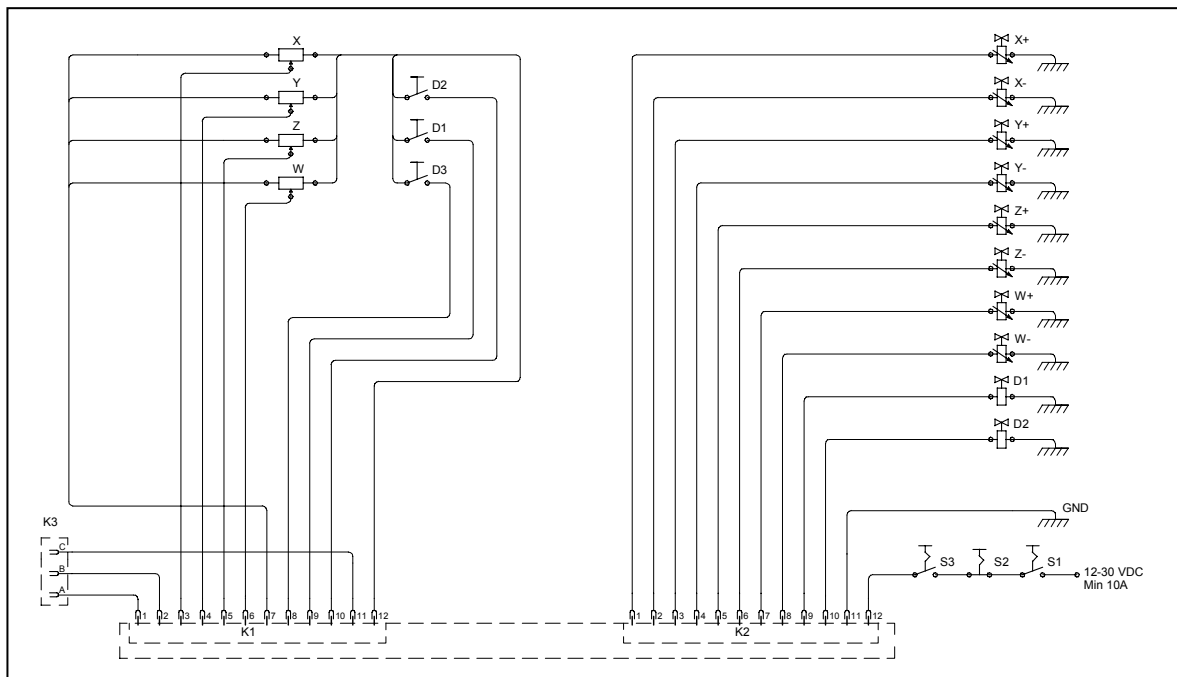
The system includes: Control unit, Joystick, Switches, Wiring and ExciControl PC software.

### 6.1 Explanation to electrical schematic

- K1 Connector inputs control unit (Gray).
- K2 Connector power supply and outputs from control unit (Black).
- K3 Connector to PC.
- S1 Main switch.
- S2 Emergency switch.
- S3 Safety switch.
- X Joystick, axis 1.
- Y Joystick, axis 2.
- Z Joystick, axis 3.
- W Joystick, axis 4.
- D1 Switch to activate digital output 1 (or any analogue output).
- D2 Switch to activate digital output 2 (or any analogue output).
- D3 Switch to shift analogue output between output 3 and 4 (Z och W).

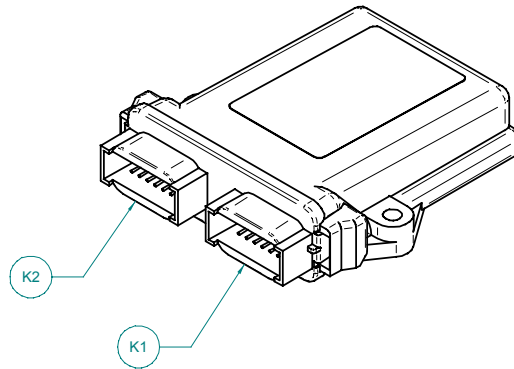
	Analogue valve (solenoid).
	Digital valve (solenoid).

### 6.2 Electrical schematic



## 7 Connectors in control unit.

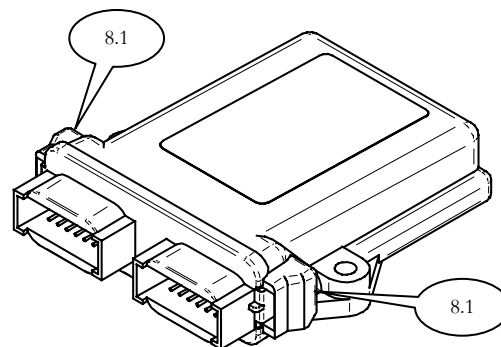
On the control unit there are two connectors. Below they are described as K1 (grey) and K2 (black).



Pin	Connector K1 (grey)	Pin	Connector K2 (black)
1	Communication PC – Control unit	1	Analogue output X+
2	Communication PC – Control unit	2	Analogue output X-
3	Analogue input X	3	Analogue output Y+
4	Analogue input Y	4	Analogue output Y-
5	Analogue input Z	5	Analogue output Z+
6	Analogue input W	6	Analogue output Z-
7	Ground to joystick	7	Analogue output W+
8	Digital input 3 (Switch)	8	Analogue output W-
9	Digital input 1	9	Digital output 1
10	Digital input 2	10	Digital output 2
11	Communication PC – Control unit	11	Ground to control unit
12	+5V to joystick	12	+24V to control unit

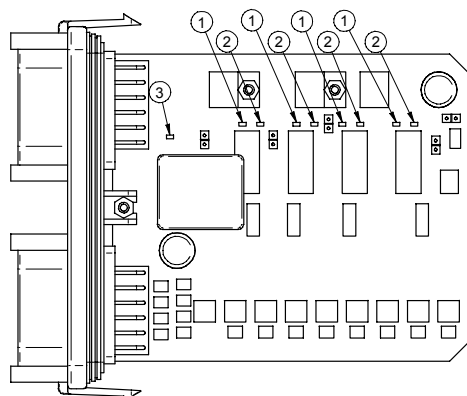
## 8 Fault diagnosis /LED indicators

On the circuit board inside the control unit there are LED indicators that will show the status of the control unit. At fault diagnosis they can be helpful to find where any faults are. To see these LED indicators you will need to open the control unit. **OBSERVE!** The control unit can be damaged if you do anything wrong and what's described below can only be done by personnel that have been trained for such work.



### 8.1 Open the control unit

The control unit can be opened by pressing a screwdriver press the two hooks (8.1), one at each side. When they are unhooked gently pull the front and the circuit board out of the enclosure.

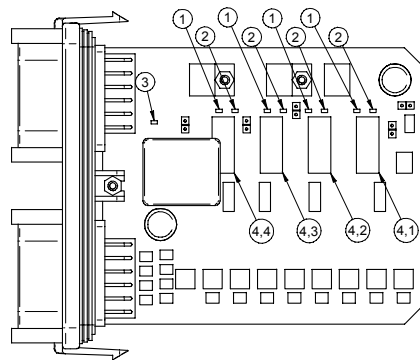


### 8.2 LED indicators inside control unit

On the circuit board there are totally nine LED indicators. Eight of those are placed two by two beside each of the four processors, green LED (1), red LED (2). These LED indicators indicate the status of each processor. One more LED indicator is placed close to the connector K2 and indicates the status on the complete control unit, red LED (3).

### 8.3 LED indicators

The control unit are equipped with four processors (4,1-4,4) where each processor controls one analogue input and two analogue outputs. Processor 4,1 = Axis X, Processor 4,2 = axis Y, Processor 4,3 = axis Z och Processor 4,4 = axis W. Processor 4,3 and 4,4 also controls the digital in- & output 1 and 2.



The LED indicators could indicate as follows:

1. LED 1	Green – flashing	Processor OK.
2. ”	Green – continuous	Processor is in programming mode.
3. LED 2	Red – continuous	Wrong program in processor.
4. ”	Red – flashing 1 time	Error on analogue output.
5. ”	Red – flashing 2 times	Error on analogue input.
6. ”	Red – flashing 3 times	Error on digital output.
7. ”	Red – flashing 4 times	Error on communication.
8. ”	Red – flashing 5 times	Error on communication. Timeout error.
9. ”	Red – flashing 6 times	Error on communication.
10. LED 3	Red – continuous	Major problem. The unit is shut down.

What are the problem / Solution?

1. No problem, everything is ok.
2. Could only be done by a technician setting the unit in programming mode.
3. Could only be done by a technician loading wrong program into the unit. Send the unit back to the manufacturer.
4. Switch of the power and try again. Still the same problem? Call technician.
5. Broken wire, short cut to ground or power, or a problem with the joystick.
6. Short cut to ground or power, or to heavy load from the valve (solenoid).
7. Switch of the power and try again. Still the same problem? Call technician.
8. Switch of the power and try again. Still the same problem? Call technician.
9. Switch of the power and try again. Still the same problem? Call technician.
10. Switch of the power and try again. Still the same problem? Power backwards on one of the outputs, to low or to high power to the unit or a major error in the unit.

## 9 Technical specification

Basic		Technical data	
Weight	0,265 kg	Power supply	12/24 VDC
Size	135 x 115 x 35 mm	Amp	200 mA (no load)
Working temperature	-25°C till +65°C	Communication	RS 232
Enclosure class.	IP 32 (IP 67 optional)	Connector K1	DTM 06-12 SA
Enclosure	ECU-Enclosure	Connector K2	DTM 06-12 SB
CE specification	* (see below)		
Fuse	8A automatic		
Temp. controlled	Yes		
Amp controlled	Yes		
Short cut recover	Yes		

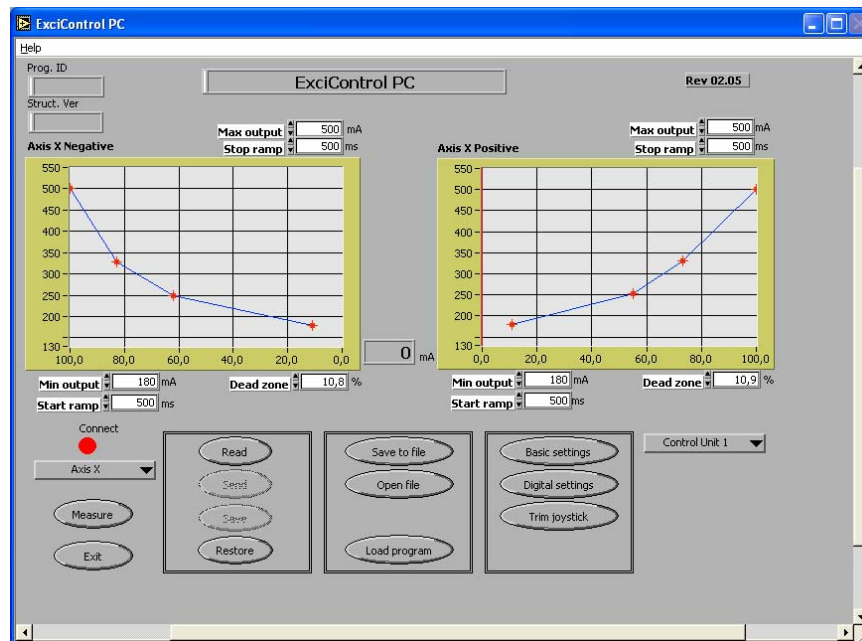
Analogue inputs		Analogue outputs	
Number of	4	Number of	8
Signal area	0-5 VDC	Output amp	0-1000 mA
Active area	0,5-4,5 VDC	Ramp	Start ramp / End ramp
Joystick mid pos.	Adjustable	Frequency	Adjustable 25-200 Hz
Min signal	Adjustable	Amplitude	Adjustable max 100%
Max signal	Adjustable	Progressive output	Adjustable
Dead zone	Adjustable	Min amp	Adjustable
Max load	50 mA	Max amp	Adjustable

Digital inputs		Digital outputs	
Number of	3	Number of	2 st
Signal area	0-32 VDC	Output amp	Max 2A
Active area	4,0 – 32 VDC	Type	Open / Closed / Toggled

### \* CE specification.

The system is CE approved and has been tested for EMC (Electromagnetic compatibility). Approved EMC tests have been made for ISO 13766:1999 (Earth movement machines) and ISO 14982:1998 (Agriculture- and forest machines).

## ExciControl PC



### Observe!

Most of the texts in ExciControl PC are editable and therefore the texts in this instruction could be different then the texts shown in your software.

## 10 Overview

ExciControl PC is a Windows compatible program and demands Windows 95 or higher. The instructions assume that the user have basic knowledge of Windows operation systems.

ExciControl PC software is a tool to make adjustments/settings in control unit ExciControl 07-10. Different settings can be saved on your PC and then downloaded to the control unit by wire. The ExciControl PC software can laso be used as a tool for fault diagnosis of the control unit, joysticks, switches and valves (solenoids).

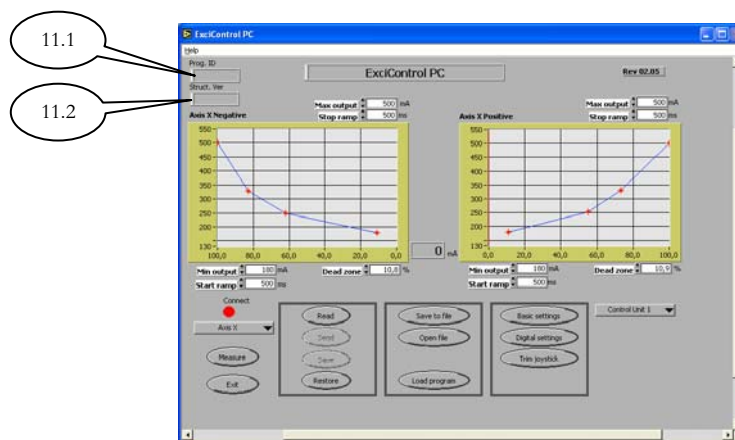
In this instruction all commands, buttons or texts that can be find in the software are market by *italic* style.

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Instruction release:	2006-01



## 11 General

To work with ExciControl PC, and all available functions you need to be online with the ExciControl 07-10 control unit by wire. Connect the wire (witch you can purchase from Excidor AB) between your PC (com port) and the control unit. Immediately when you connect the PC to the control unit all actual settings in the control unit will be shown in to your software. If you would like to have different settings available you can save them as a file in your PC.

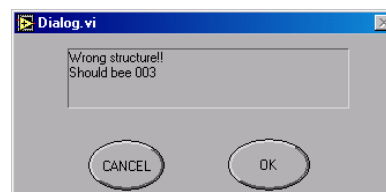


### 11.1 Prog. ID

When the control unit is online the actual program version for the unit will be shown here. This program is downloaded by the manufacturer and can not be changed by the customer.

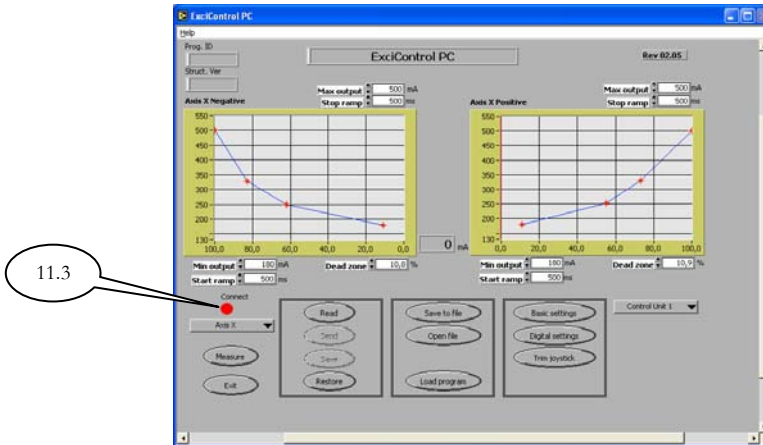
### 11.2 Struct. Ver

When the control unit is online the actual structure of the program will be shown here, and if it's compatible with your software version. This special structure will be downloaded together with the program by the manufacturer and can not be changed by the customer. Together with ExciControl PC version 02.05 should the structure be 003. If not following will be shown:



If you get this message (with the control unit online) call your supplier of the ExciControl system.

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### 11.3 Connect

When you are online with the control unit it will be shown as a green dot. If the connection to the control unit has a failure it will be shown with a red dot. If the dot is red, check that you're using the right kind of wire between your PC and the control unit. If this doesn't help you could have a problem with the setting of com port. To change com port in the software, look in section 20.8 of this instruction.

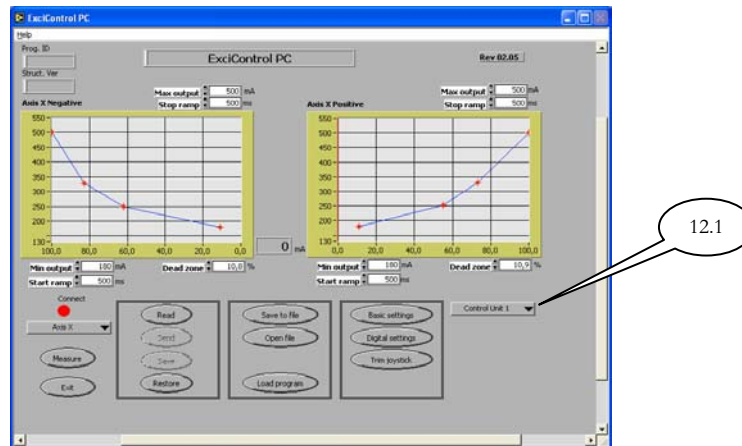


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## 12 Choose control unit

The software can only administrate one control unit at a time. If you have more than one control unit in your system you can have 4 different of test settings in your software to get the texts to be accurate depending on which control unit you have online.

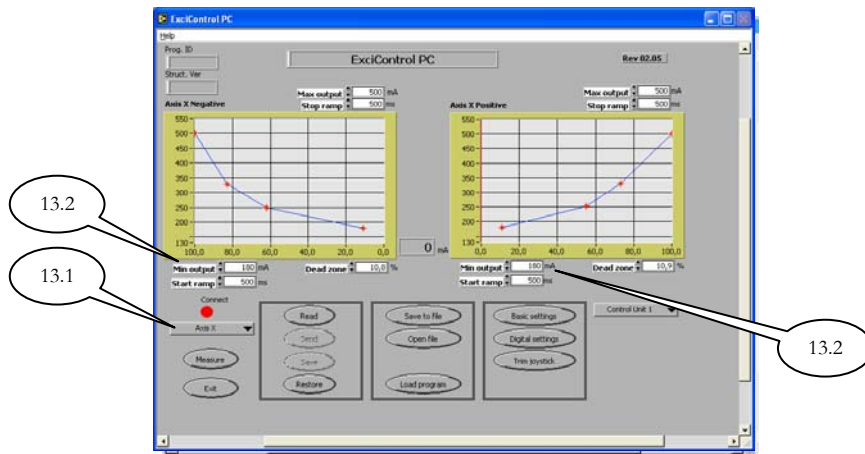


### 12.1 Control unit 1-4

Choose which one of your control units you will connect to (the only change is the texts above each diagram in the software). The choice of unit doesn't affect the possibility to be online with any of your units.

## 13 Analogue outputs

This section describes what different kind of settings you can do on all 8 analogue outputs. All adjustment is made individual for each of the 4 axis. Changes can only be made in one axis at a time (the one that is active). How to choose axis, look in section 13.1 in this instruction.



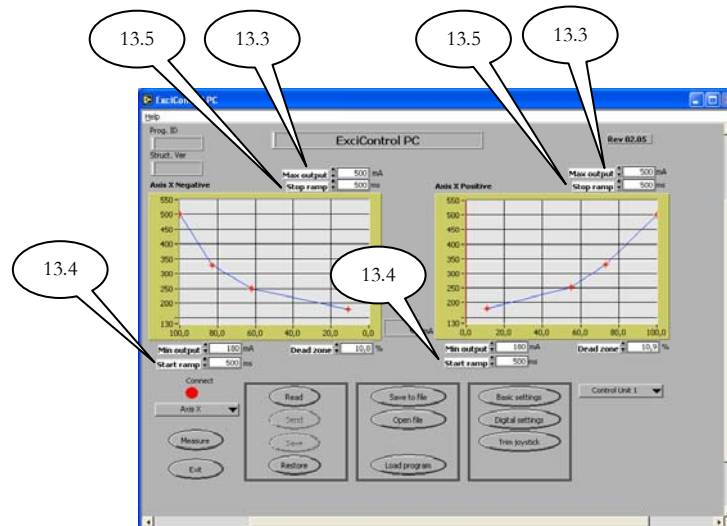
### 13.1 Axis X, Y, Z & W.

The control unit is able to work with 4 individual analogue inputs from joysticks (4 axes). Plus- & minus side of each input will give you totally 8 analogue outputs. (section 6 in this instruction). *Axis X* controls output X+ and X-. *Axis Y* controls output Y+ and Y-. *Axis Z* controls output Z+ and Z-. *Axis W* controls output W+ and W-. The active axis will be shown in the two diagrams in your software. The settings you now can change will only take affect in the active axis. You choose axis by the button which is marked *Axis X*, *Axis Y*, *Axis Z* or *Axis W*. Every time you choose an axis the software will automatically receive actual settings from the control unit.

### 13.2 Min output

Sets the lowest possible speed for this output. Value shown is mA (milli ampere). When the joystick is in center position the output is not active (0 mA) When the joystick position will be changed, and get outside of *Dead zone* (section 14.2 in this instruction), the output will make a jump up to the setting for *Min output*. It will be shown as a red cross in the diagram and also as an actual value between the two diagrams. How to adjust the *Min output* is described in section 20.4 in this instruction.)

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### 13.3 Max output

Sets the highest possible speed for this output. Value shown is mA (mille ampere). It will be shown as a red cross in the diagram and also as an actual value between the two diagrams. The highest possible value you can get is when the joystick is fully positioned in on of it ends (section 14.1 in this instruction). How to adjust the *Max output* is described in section 20.4 in this instruction.)

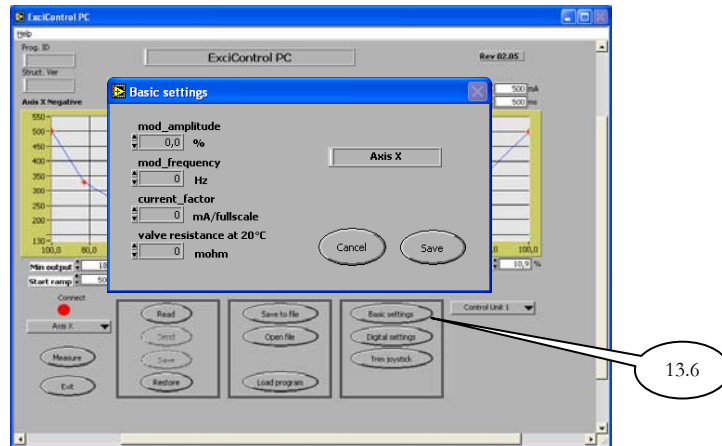
### 13.4 Start ramp

Function to be used if you would like a smooth start on the analogue output for the actual axis, even if you make a fast change with the joystick. Value shown is ms (mille sec, 1000ms=1sec). The value will be the time it will take for the output to travel from Min amp to Max amp if the joystick change is fast.

### 13.5 Stop ramp

Function to be used if you would like a smooth stop on the analogue output for the actual axis, even if you make a fast change with the joystick. Value shown is ms (mille sec, 1000ms=1sec). The value will be the time it will take for the output to travel from Max amp to Min amp if the joystick change is fast.

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### 13.6 Basic settings

Function to adjust the basic setting of each analogue output (per axis).

**OBS! The basic settings are values adjusted depending on the specification of the valves (solenoids) and should not be changed unless the user has good knowledge of these specifications.**

#### *mod\_amplitude*

Value in percent for the amplitude of each analogue output. Min 0%, Max 100% (Default approx. 10%).

#### *mod\_frequency*

Value in hertz for the frequency of each analogue output. Min 25Hz, Max 200Hz.

#### *current\_factor*

This setting is adjusted by the manufacturer and should not be changed. Default value 950 mA.

#### *valve\_resistance at 20°C*

Sets the accurate resistance for the valve (solenoid) on each analogue output (per axis). The value should be the resistance for the valve (solenoid) at a temperature of 20°C and in mohm (mille ohm). 21000 mohm = 21 ohm.

#### *Save*

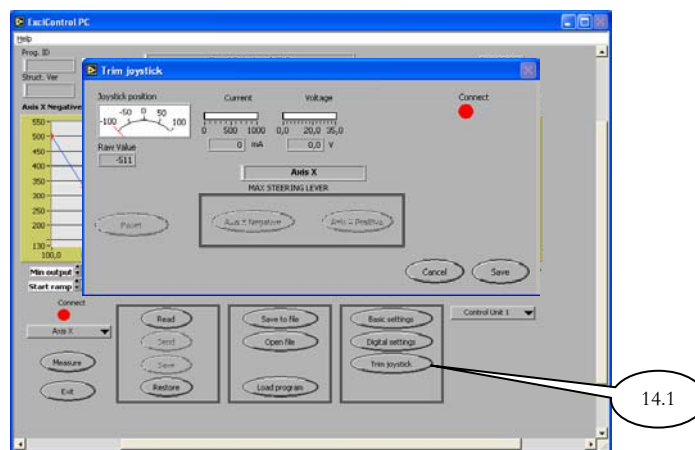
When changes are made you save them by clicking *Save*. The settings are saved temporarily in the PC program but will not be sent to the control unit before you have used the *Send* command (section 17.2 in this instruction).

#### *Cancel*

By using the command *Cancel* you can escape from this menu without saving the settings.

## 14 Analogue inputs

This section describes the different possibilities there are to adjust the four analogue inputs. All adjustment will only affect the analogue input that is active. How to choose active input see section 13.1 in this instruction.



### 14.1 Trim joystick

Set the limits of your joysticks to the control unit. The adjustment to do is setting the center position and the max limit on both positive and negative side. To find out more of this adjustment see section 20.0 in this instruction.

#### *Joystick position*

Show you in percent the actual position of your joystick. 0 = Joystick is in center position (2,5V). -100 = Joystick is in maximum position in negative direction (0V). 100 = Joystick is in maximum position in positive direction (5V).

#### *Raw Value*

Same as *Joystick position*. Show you the value in mV (mille volt) as if the center position is 0mV.

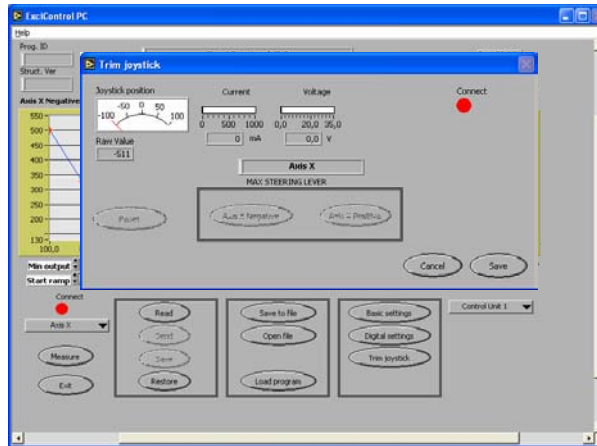
#### *Current*

Show you the actual output ampere of the analogue output in mA (mille ampere).

#### *Voltage*

Show you the actual system power supply in V (volt).

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### *Reset*

Reset the center position of your joystick (section 20.1 in this instruction).

### *Axis X Negative*

Set the max position of the joystick in negative direction (section 20.1 in this instruction).

### *Axis X Positive.*

Set the max position of the joystick in positive direction (section 20.1 in this instruction).

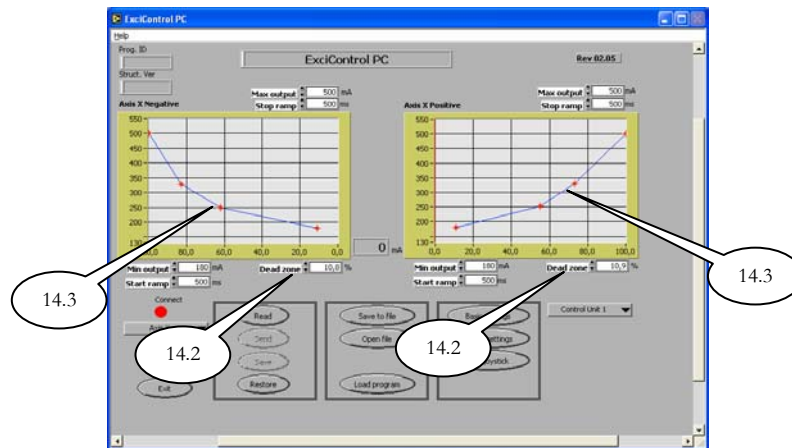
### *Save*

When changes are made you save them by clicking *Save*. The settings are saved temporarily in the PC program but will not be sent to the control unit before you have used the *Send* command (section 17.2 in this instruction).

### *Cancel*

By using the command *Cancel* you can escape from this menu without saving the settings.

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## 14.2 Dead zone

Set the possible length of travel (from center position) for your joystick to move before the output will become active. Value in % (percent).

## 14.3 Progressive joystick control

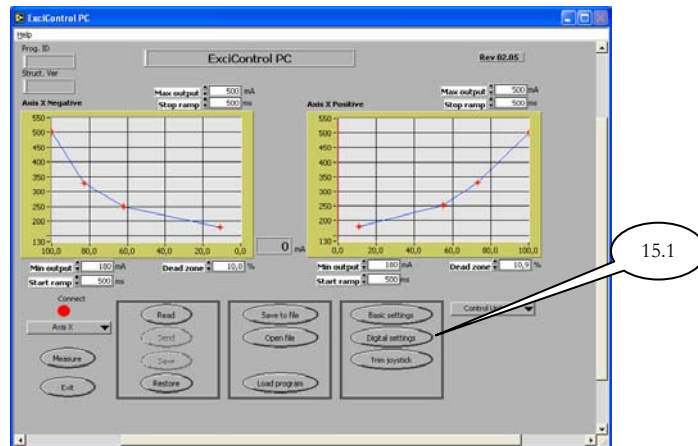
The normal way for the output to decide the output amp is to follow the joystick input by a linear movement. With the progressive joystick control you can change this. In the example above you can see that if the joystick moves 60% from its center position the output will change from 0mA to 300 mA. And when the joystick moves the last 40% (from 60% to 100%) the output will change from 300 mA to 750 mA. This feature will give you the possibility to get a very sensitive first movement for your joystick and still have the possibility to get a high output amp in the end. How to set this is described in section 20.6 in this instruction.

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## 15 Digital inputs and outputs

The control unit can manage 3 digital inputs and 2 digital outputs. Digital inputs can be set to control either digital- or analogue outputs. One digital input can also be used to switch one of the analogue inputs to control two different analogue outputs.



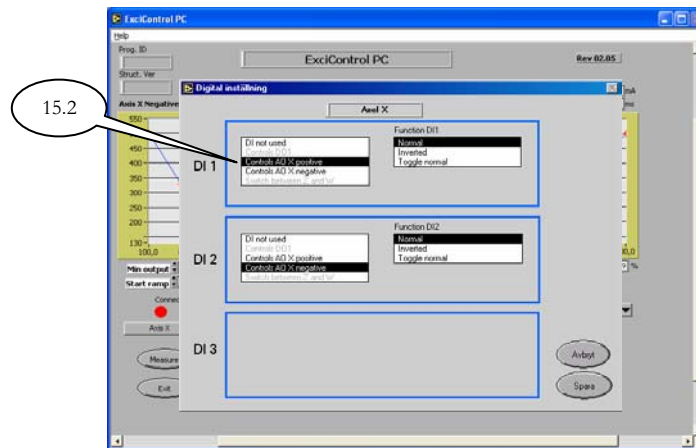
### 15.1 Digital settings

To set the digital inputs and outputs you first need to decide which one of the axes to be active. How to choose which axis to be active, see section 13.1 in this instruction.

If you choose *Axis X* or *Axis Y* the digital input 1 or 2 can control analogue output X or output Y.



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Above we have chosen *Axis X* as the active axis and will get following possibilities to control analogue output X. (if you choose *Axis Y* as active axis you will get the same possibilities for analogue output Y instead of X).

If no choices are available (nothing is shown in the menu) there are already settings made in another axis.

## 15.2 Digital settings (Axis X and Y)

### *DI not used*

Digital input is not used to control analogue output X.

### *Controls DO1*

Can not be chosen (Will only work in *Axis Z* or *Axis W*).

### *Controls AO X positive*

Digital input is used to control analogue output X positive.

### *Controls AO X negative*

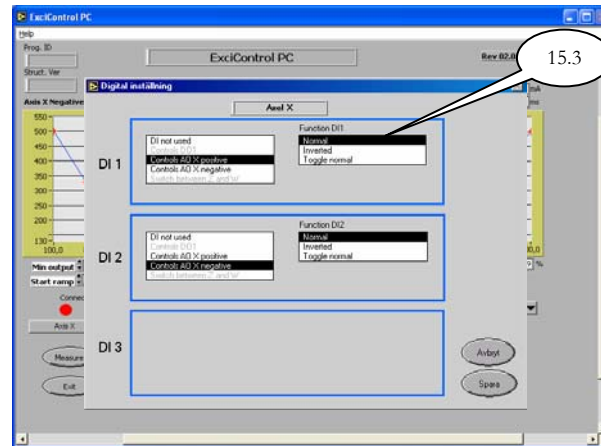
Digital input is used to control analogue output X negative.

### *Switch between Z and W*

Can not be chosen (Will only work in *Axis Z* or *Axis W*).

If the choice is *Controls AO X positive* or *Controls AO X negative* there are more choices in the menus on the right side (see section 15.3 in this instruction).

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### 15.3 Function DI1 and DI2 (Axis X and Y)

#### *Normal*

Analogue output is active when digital input is active.

#### *Inverted*

Analogue output is active when digital input is not active.

#### *Toggle normal*

Analogue output change between active or not active every time the digital input is activated.

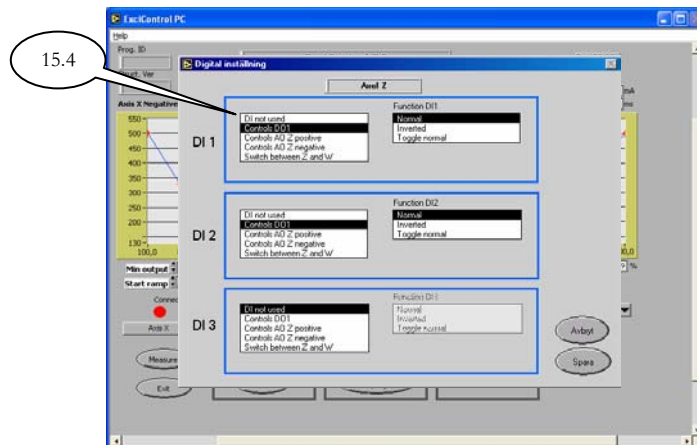
#### *Save*

When changes are made you save them by clicking *Save*. Observe that the settings are only saved temporarily in the control unit and need to be saved by the command *Save* in the main program (section 17.3 in this instruction). If you change axis before using the save command you will loose these settings.

#### *Cancel*

By using the command *Cancel* you can escape from this menu without saving the settings.

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### 15.4 Digital settings (Axis Z and W)

If you choose *Axis Z* or *Axis W* the digital input 1, 2 and 3 (DI1, DI2 and DI3) can be used to control analogue output Z or W or digital output 1 or 2 (depending on which axis are active). Digital inputs (DI1, DI2 and DI3) can also be used as a switch where analogue input Z can control either analogue output Z or W.

In the example above we have chosen to have axis Z to be active Axis and will get the following possibilities to control either analogue output Z or digital output 1 (if you choose axis W to be active axis you will get the same possibilities but instead to control either analogue output W or digital output 2).

If no choices are available (nothing is shown in the menu) there are already settings made in another axis.

#### *DI not used*

Digital input is not used to control analogue Z or digital output 1.

#### *Controls DO1*

Digital input is used to control digital output 1.

#### *Controls AO Z positive*

Digital input is used to control analogue output Z positive.

#### *Controls AO Z negative*

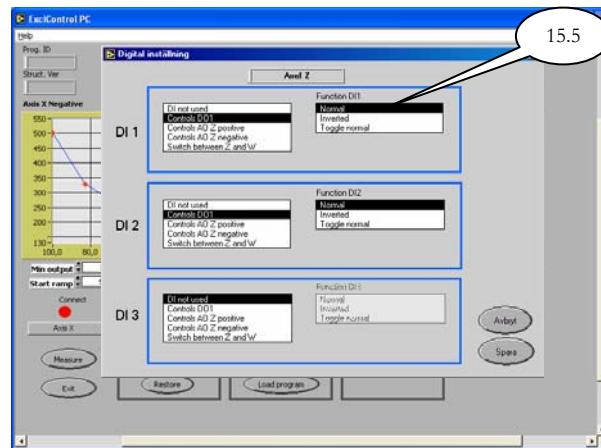
Digital input is used to control analogue output Z negative.

#### *Switch between Z and W*

Digital input is used as a switch for analogue input Z to control both analogue output Z and W.

If the choice is *Controls DO1*, *Controls AO Z positive*, *Controls AO Z negative* or *Switch between Z and W* there are more choices in the menus on the right side (see section 15.5 in this instruction).

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### 15.5 Function DI1, DI2 and DI3 (Axis Z and W)

#### *Normal*

Analogue output is active when digital input is active.

#### *Inverted*

Analogue output is active when digital input is not active.

#### *Toggle normal*

Analogue output will change between active or not active every time the digital input is activated.

### **OBSERVE!**

If you choose to use a digital switch as a switch for Analogue output Z and W and you have the ExciControl PC software connected you don't need to use the actual switch for this function. If you change from *Axis Z* to *Axis W* the input will automatically change from controlling output Z to W. If you disconnect the ExciControl PC software you need to make this change from the actual switch.

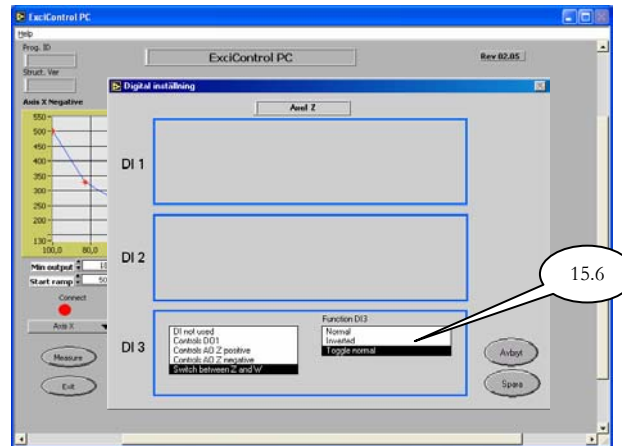
#### *Save*

When changes are made you save them by clicking *Save*. Observe that the settings are only saved temporarily in the control unit and need to be saved by the command *Save* in the main program (section 17.3 in this instruction). If you change axis before using the save command you will lose these settings.

#### *Cancel*

By using the command *Cancel* you can escape from this menu without saving the settings.

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### 15.6 Function DI3 (Axis Z and W)

#### *Normal*

Output Z will switch to output W when the digital input is active.

#### *Inverted*

Output Z will switch to output W when the digital input not is active.

#### *Toggle normal*

Analogue output Z will change to output W and back every time the digital input is activated.

### **OBSERVE!**

If you choose to use a digital switch as a switch for Analogue output Z and W and you have the ExciControl PC software connected you don't need to use the actual switch for this function. If you change from *Axis Z* to *Axis W* the input will automatically change from controlling output Z to W. If you disconnect the ExciControl PC software you need to make this change from the actual switch.

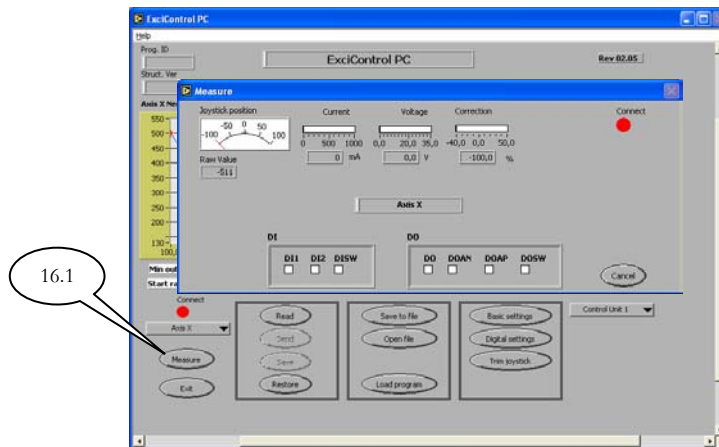
#### *Save*

When changes are made you save them by clicking *Save*. Observe that the settings are only saved temporarily in the control unit and need to be saved by the command *Save* in the main program (section 17.3 in this instruction). If you change axis before using the save command you will loose these settings.

#### *Cancel*

By using the command *Cancel* you can escape from this menu without saving the settings.

## 16 Trouble shooting



### 16.1 Measure

If you click on the button *Measure* you will find a number of functions for trouble shooting. Observe that the values shown are only for the actual chosen axis. How to choose axis see section 13.1 in this instruction.

#### *Joystick position*

Show you in percent the actual position of your joystick. 0 = Joystick is in center position (2,5V). -100 = Joystick is in maximum position in negative direction (0V). 100 = Joystick is in maximum position in positive direction (5V).

#### *Raw Value*

Same as *Joystick position*. Show you the value in mV (mille volt) as if the center position is 0mV.

#### *Current*

Show you the actual output ampere of the analogue output in mA (mille ampere).

#### *Voltage*

Show you the actual system power supply in V (volt).

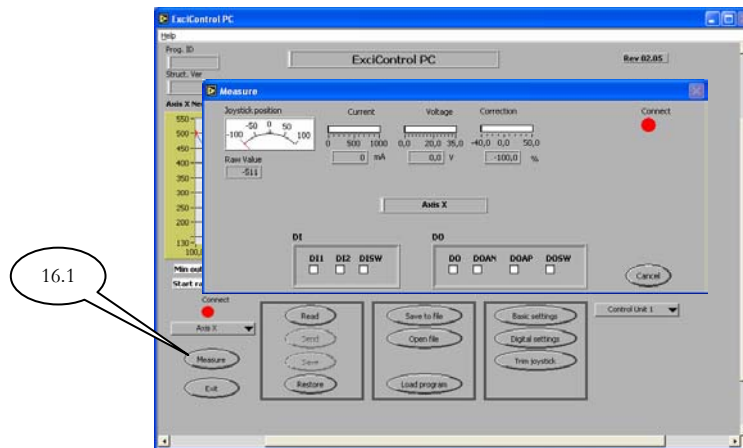
#### *Correction*

Show the actual compensation made by the control unit for the analogue output to try to get the accurate ampere to the valve (solenoid). Value is shown in % (percent) of the set ampere.

#### *Connect*

Show if the connection between the control unit and the PC is ok. Green = ok. Red = not ok.

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*DI1*

If the digital switch no 1 is pushed and the signal is getting in to the system it will be shown by a red square.

*DI2*

If the digital switch no 2 is pushed and the signal is getting in to the system it will be shown by a red square.

*DISW*

If the digital switch no 3 is pushed and the signal is getting in to the system it will be shown by a red square.

*DO (only axis Z and W)*

If you have a digital input connected to a digital output and activate the function it will be shown as a red square if everything is ok.

*DOAN*

If you have a digital input connected to an analogue output (negative side) and activate the function it will be shown as a red square if everything is ok.

*DOAP*

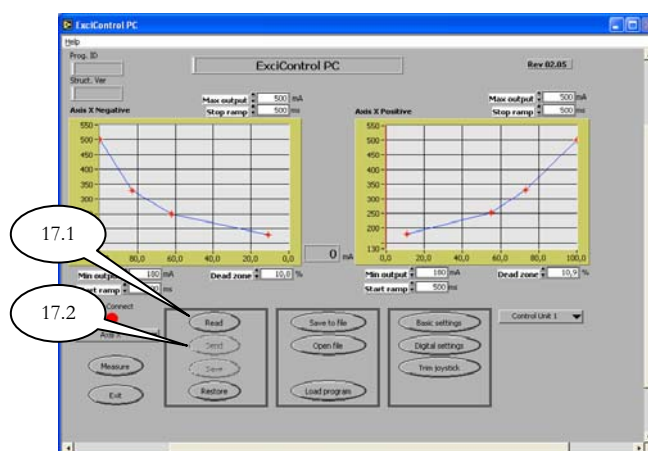
If you have a digital input connected to an analogue output (positive side) and activate the function it will be shown as a red square if everything is ok.

*DOSW (only axis W)*

If the analogue output W is controlled by the function *Switch between Z and W* it will be shown her by a red square.

## 17 Kommunikation with the control unit

To be able to make adjustment in the system you will need to be connected by wire between your PC and the control unit. When you open the program ExciControl PC you will see by a green dot (underneath *Connect*) if the communication is ok. Om pricken är röd har ingen kommunikation upprättats. I detta fall skall du kontrollera att rätt kabel används och att den är inkopplad i avsedd kontakt i både PC och styrenhet. Om detta ej hjälper kan felaktig com port vara inställd i ditt program. Hur du ändrar com port hittar du under avsnitt 20.8. (Hur ändrar jag com port?)



### 17.1 Read

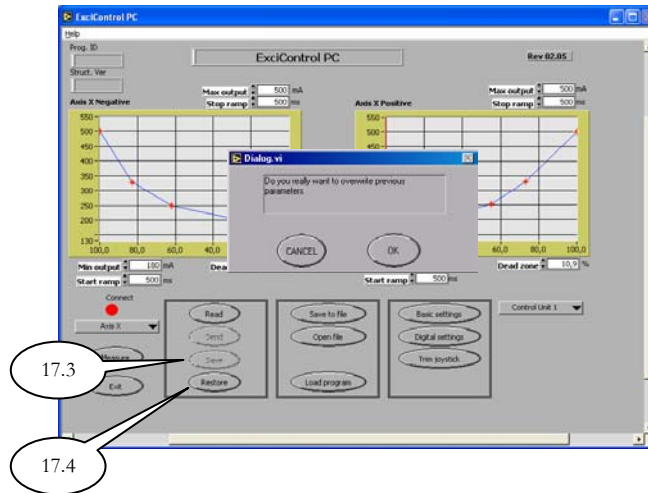
Read the actual settings from the control unit and show them in ExciControl PC.

### 17.2 Send

Send temporary settings to the control unit. Observe! These settings are only saved temporarily in the control unit. If you change axis the settings will be lost. If you want to store the changes permanently you need to use the command *Save*. (section 17.3 in this instruction).



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### 17.3 Save

Save your changes permanently in the control unit after you have used the command *Send* (section 17.2 in this instruction. To be sure that you don't save changes accidentally you will get a message (picture above) where you need to confirm with *OK* before the changes are saved.

### 17.4 Restore

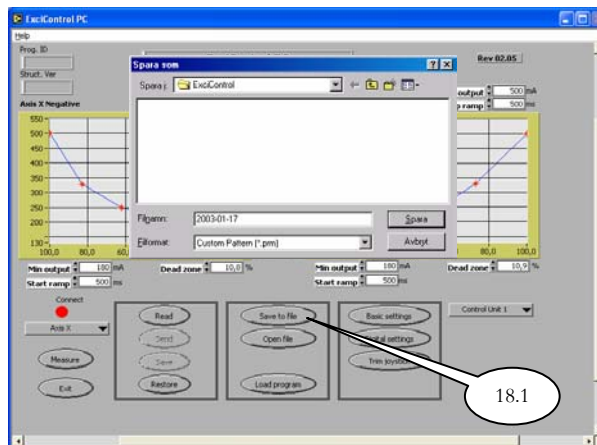
After you have made changes and temporarily have sent them with the command *Send* you can always go back to previous settings with the command *Restore*.

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## 18 Save and open file from PC

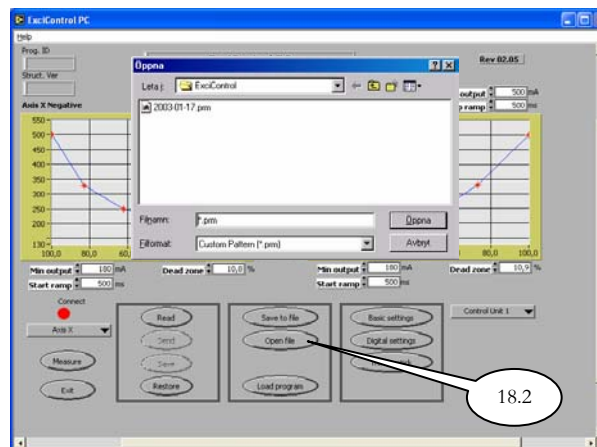
You can save and open different settings on your PC. All files will be saved with the extension \*.prm.



### 18.1 Save to file

When you use the command *Save to file* you will automatically get to the menu "Save as". Choose folder and filename and click on *Save*.

### 18.2 Open file



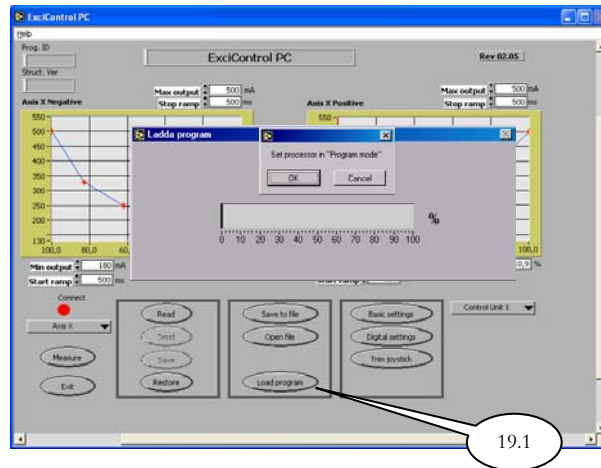
When you use the command *Open file* you will automatically get to the menu "Open". Mark a file and click *Open*, and the settings will immediately be sent to the control unit and be showed in the program.

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## 19 Load program

The main program is downloaded by Excidor AB in to the control unit before delivery. The different settings later made by the user are not affecting this main program.



### 19.1 Load program

To load a new main program is not a setting made by the user. This action is only made by Excidor AB or by Excidor AB approved technician. Therefore this action is covered by a password.

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## 20 Communication port

This chapter describes how to make the most common changes in the system.

### 20.1 How do I change Com port for the program?

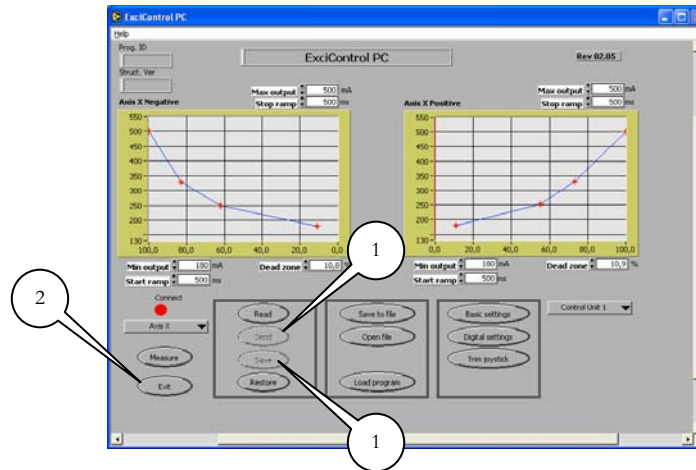
A screenshot of a Windows Notepad window titled "User.ini - Anteckningar". The window displays the contents of a User.ini file. The text is as follows:

```
[Program]
Program name=ExciControl PC
[port]
port=com1
[Address]
Piston1 Address=00
Piston2 Address=01
Piston3 Address=02
Piston4 Address=03
[Controllers]
Controller1=Styrenhet 1
Controller2=Styrenhet 2
Controller3=Styrenhet 3
Controller4=Styrenhet 4
[Piston]
Controller1 Piston1=Axel X
Controller1 Piston2=Axel Y
Controller1 Piston3=Axel Z
Controller1 Piston4=Axel W
Controller2 Piston1=Axel X
Controller2 Piston2=Axel Y
Controller2 Piston3=Axel Z
Controller2 Piston4=Axel W
Controller3 Piston1=Axel X
Controller3 Piston2=Axel Y
Controller3 Piston3=Axel Z
Controller3 Piston4=Axel W
Controller4 Piston1=Axel X
Controller4 Piston2=Axel Y
Controller4 Piston3=Axel Z
Controller4 Piston4=Axel W
[Diagram]
Controller1 Piston1 Neg Diagram=Axel X Negativ
Controller1 Piston1 Pos Diagram=Axel X Positiv
Controller1 Piston2 Neg Diagram=Axel Y Negativ
Controller1 Piston2 Pos Diagram=Axel Y Positiv
Controller1 Piston3 Neg Diagram=Axel Z Negativ
Controller1 Piston3 Pos Diagram=Axel Z Positiv
Controller1 Piston4 Neg Diagram=Axel W Negativ
Controller1 Piston4 Pos Diagram=Axel W Positiv
Controller2 Piston1 Neg Diagram=Axel X Negativ
Controller2 Piston1 Pos Diagram=Axel X Positiv
Controller2 Piston2 Neg Diagram=Axel Y Negativ
Controller2 Piston2 Pos Diagram=Axel Y Positiv
Controller2 Piston3 Neg Diagram=Axel Z Negativ
Controller2 Piston3 Pos Diagram=Axel Z Positiv
```

To change Com port you need to be familiar with different commands in Windows. If not, ask your local PC technician for help. In the instruction of this chapter we will change the com port from 1 to 2.

1. End the program ExciControl PC.
2. Use Windows Explorer to find the file User.ini in the folder you have installed your ExciControl PC program. (Default, C:\Program Files\Excicontrol\_PC).
3. Open the file User.ini by double click on it.
4. Find the row, port=COM1
5. Change it to, port=COM2
6. Save the changes and close the program.
7. Start ExciControl PC with the new changes.

## 21 Exit ExciControl PC



1. Before you exit the program remember to first *Send* and then *Save* if any changes are made.
2. To end the program click *Exit*.

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