ADAQexiom user manual

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Introduction

This user manual is an integral part of the dynoKRAFT ADAQexiom expansion module hardware and software plugin.

Original User Manual for dynoKRAFT ADAQexiom expansion module hardware and software plugin.
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This manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by dynoKRAFT.

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Hardware setup

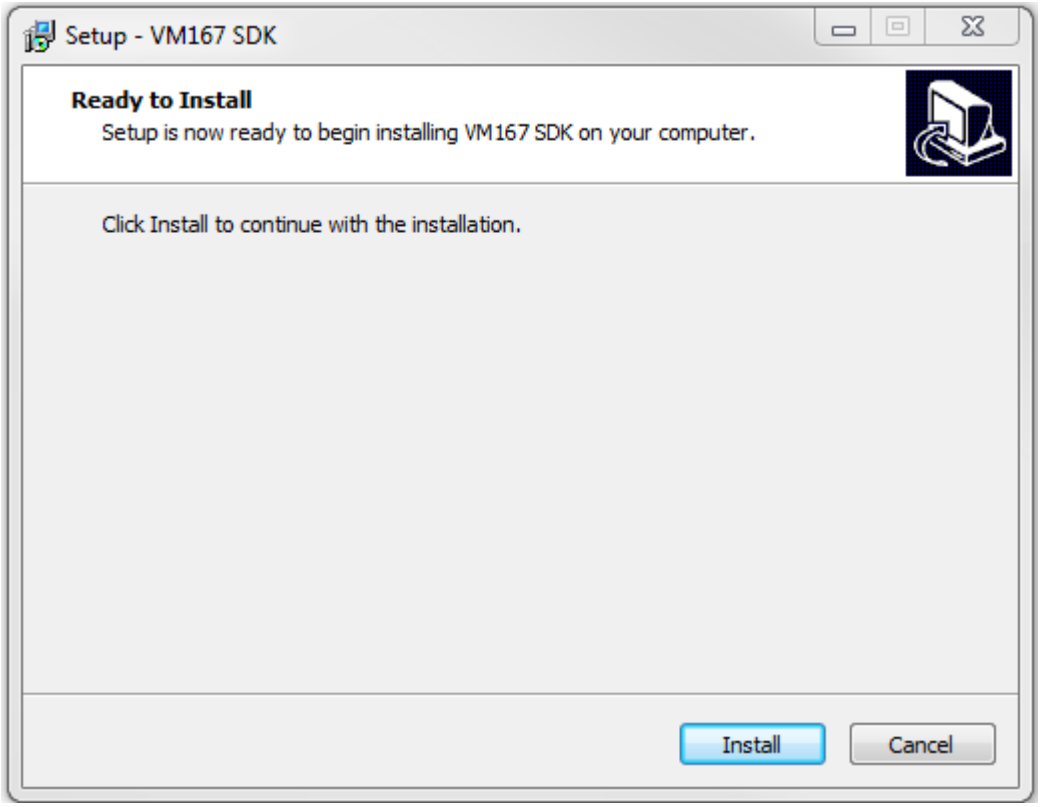
Connecting ADAQexiom hardware to Windows PC

ⓘ This manual assumes that you have the latest ADAQ software installed on your Windows 11 PC as described in other section of this wiki (see: **ADAQ software** main article)
and that the PC has active internet connection and all Windows Updates are installed.

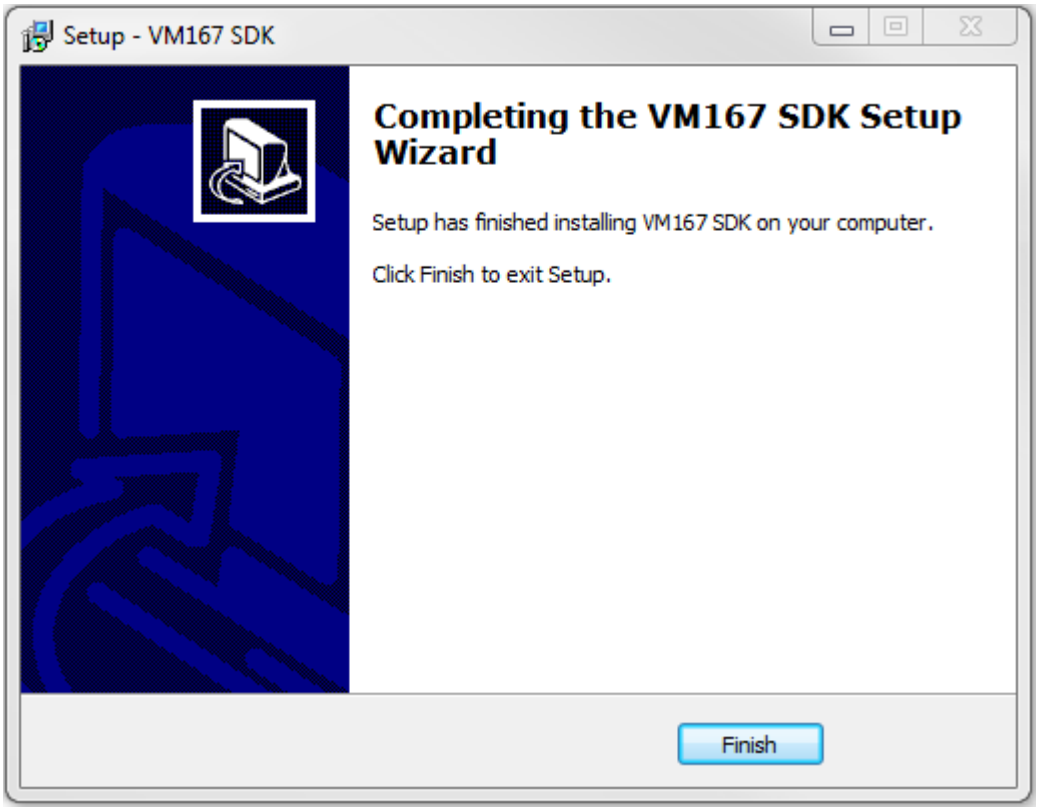
The ADAQ dynamometer controller package (hardware and software) is designed to be used with Windows 11 both 32- and 64-bit versions.
dynoKRAFT provides support only for this operating system.

Driver installation

Before connecting the ADAQexiom expansion module to your PC please install the driver package.
1. Download, unzip and install the ADAQexiom / VM167 SDK driver package (see article attachments).



2. Close the installer with "Finish" button.



Plugin installation

ⓘ Depending on your Anti-Virus or Firewall settings some PC's may consider the plugin .dll file as harmful and try to prevent installation or even propose to quarantine or report the file.
Please prevent this behavior with corresponding actions and recognize the file as save to use.

⚠ **WARNING!**

DO NOT install both Valemann VM167 and ADAQexiom plugin at the same time.
These two plugins will try to use the same driver thus causing conflict in hardware that will result in permanent ON-OFF operation of relays.

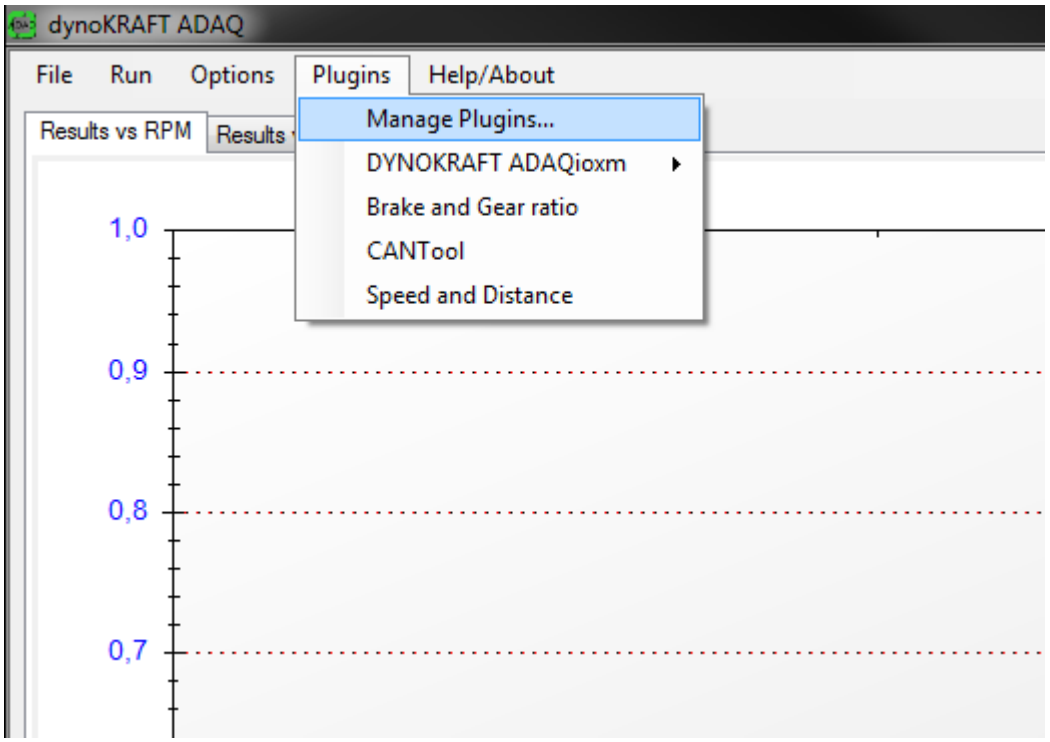
To use the ADAQexiom expansion module you must now install the ADAQexiom plugin for ADAQ software.
1. Download the ADAQexiom.zip file (see attachments at the bottom of this page) and unzip it.
This zip-package contains an .dll file(s) which is the actual plugins.

Please note that the plugins are NOT backwards compatible. Use the correct plugin version for your YourDyno release:

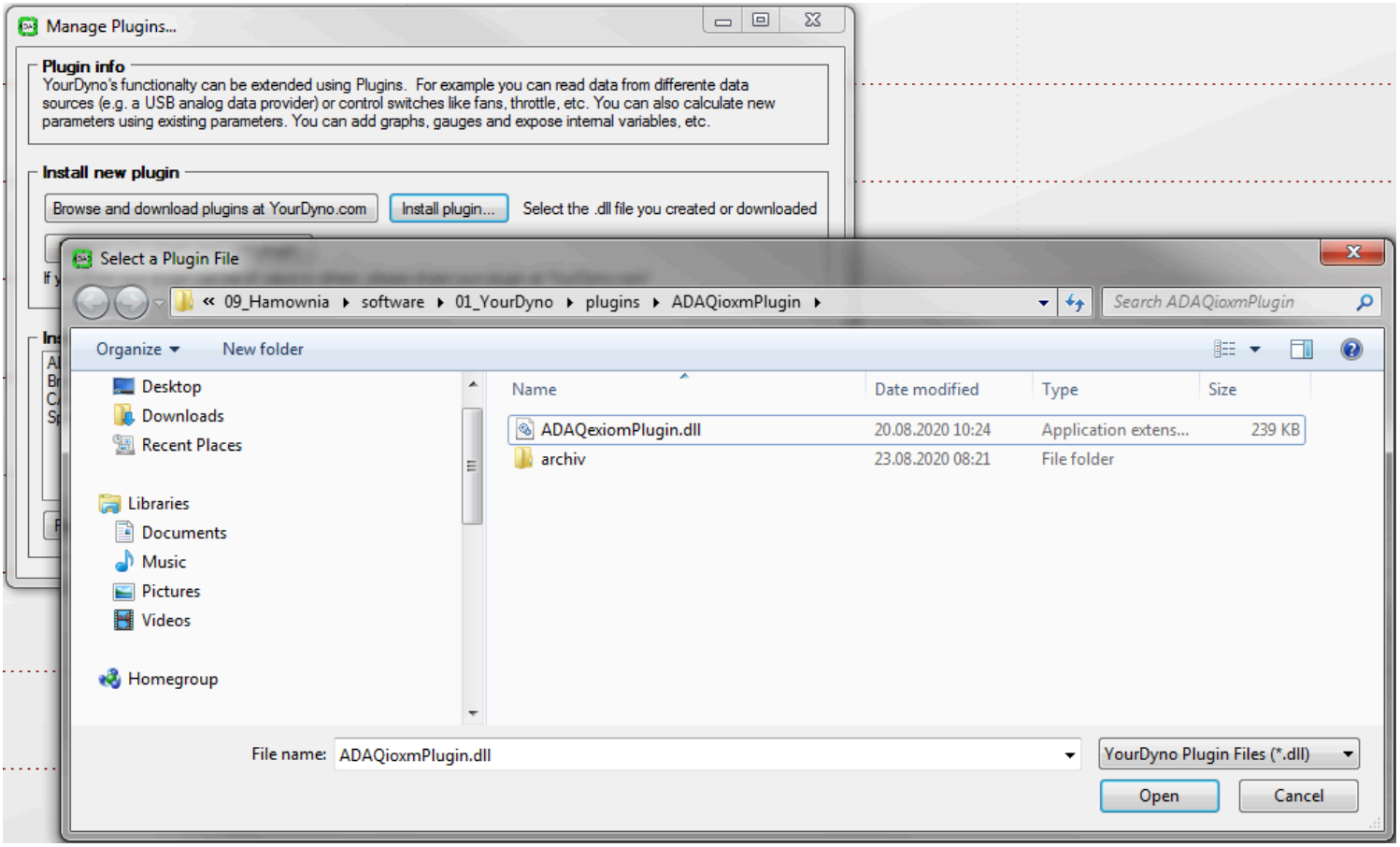
YourDyno Version	ADAQexiom Plugin Version

	(download ZIP file at the bottom of this page)
3.3.45	Plugin for YD 3.3.45.zip
3.3.59	Plugin for YD 3.3.59.zip
3.3.74	Plugin for YD 3.3.59.zip
4.0.52 UnaVision	Plugin for UnaVision 4.0.52.zip

2. Start ADAQ software and navigate the Plugin Manager.



3. Press "Install plugin..." button and in the following window select the unzipped "ADAQexiomPlugin.dll" and "ADAQexiomPBase.dll" files.
After installation close the Plugin Manger window.

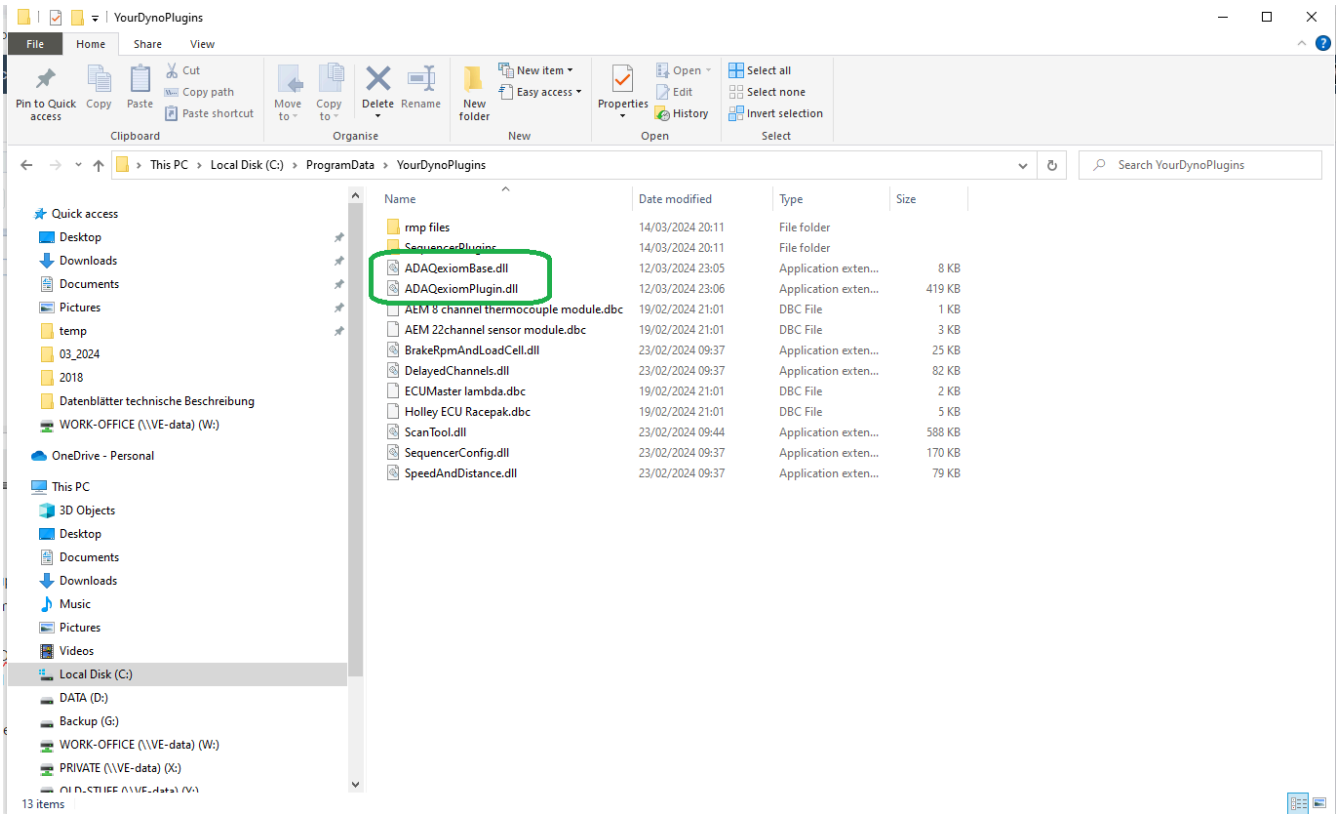


Manual Plugin installation / update

Normally, when you uninstall old YourDyno Software before updating to newer version the ADAQexiom plugin will not be deleted from "YourDynoPlugins" directory on C:\ drive.
Once the new YourDyno software will be installed the result may be that there's version conflict between YD and ADAQexiom.

Therefore the best practice is to manually replace the "old" ADAQexiom plugin with "new" version, that's compatible with your desired YD version.
To do so please close YourDyno software - if it's running - and navigate to C:\ProgramData\YourDynoPlugins

In this directory replace the two existing ADAQexiom.... .dll files with new, compatible ones as per table above.



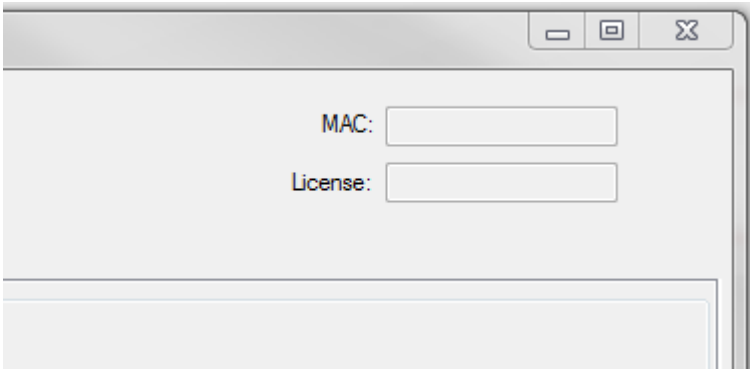
Plugin configuration

Plugin licence

All advanced features of ADAQexiom modules require licence for the ADAQ software plugin for normal operation.
An licence key is is generated for specific MAC address of your PC. Please contact dynoKRAFT to acquire license for your PC. You must share us your MAC address.

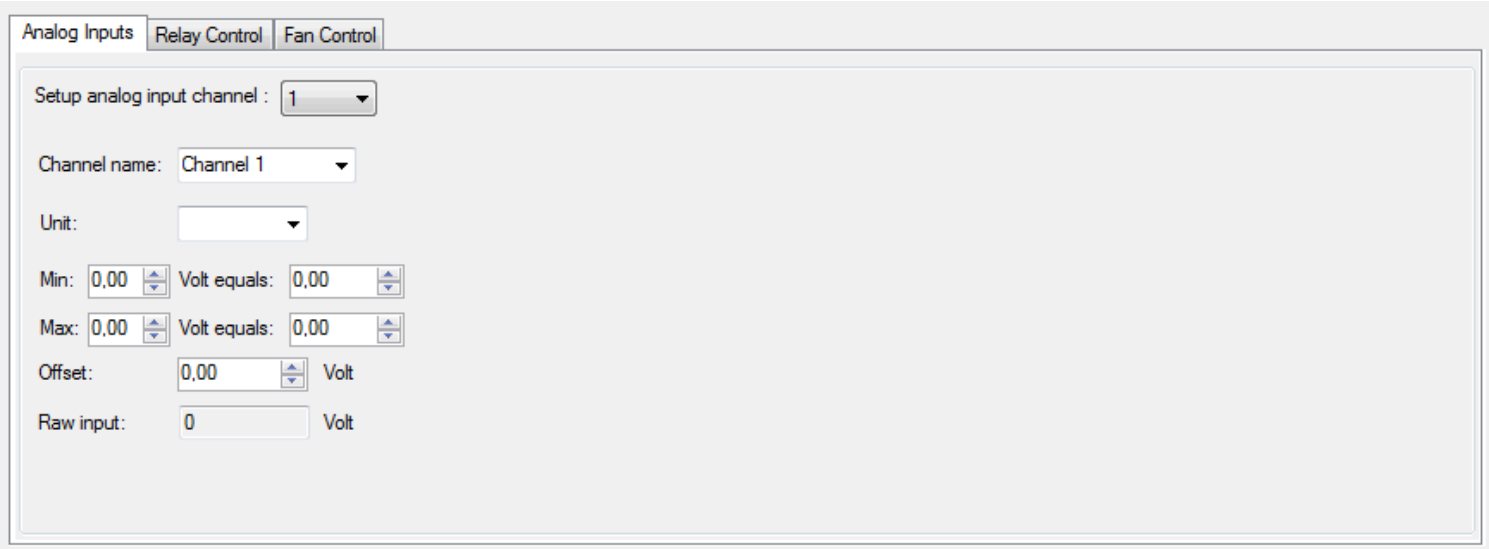
Please enter the received licence key into the corresponding field to activate the plugin.

This function is currently deactivated.



Analog Inputs

The ADAQexiom module offers five freely configurable analog inputs 0-5V DC.
To configure them please navigate to ADAQexiom configuration: Menu Plugins -> dynoKRAFT ADAQexiom -> ADAQexiom configuration
Select first tab called Analog Inputs.:



How to setup Analog Input channel

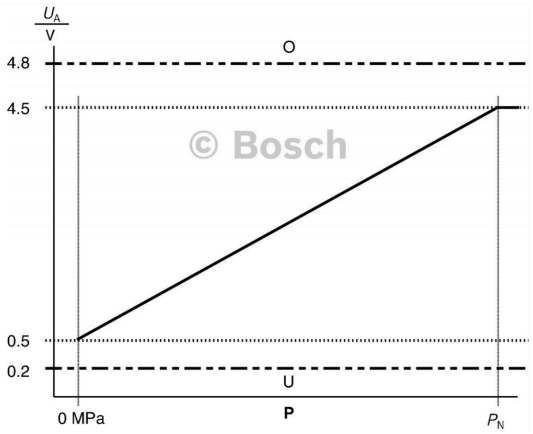
1. From the drop-down list "Setup analog input channel" select which channel you wan't to configure.

2. Click on the drop-down arrow in the "Channel name" filed to select select pre-defined channel name.
To assign your own channel name please select the option <custom> then rename the filed to your liking.

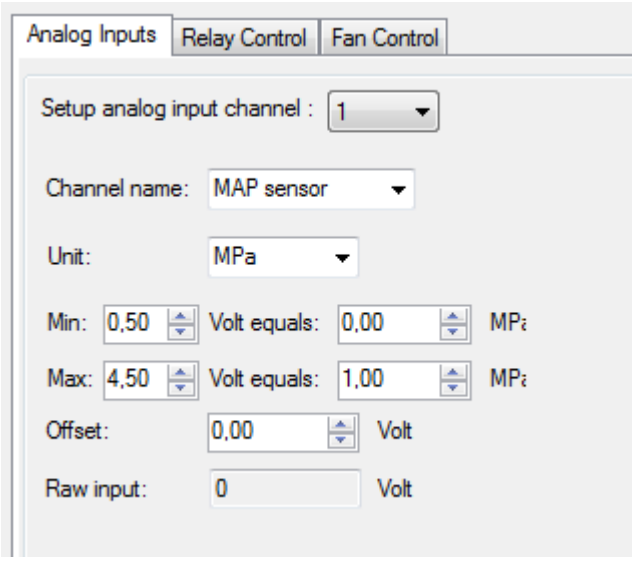
3. Select which Unit you wan't to use. Select <custom> and re-name the filed for custom unit names.

4. Set sensor calibration (interpolation) using Mn. and Max. fields.

Example:
Bosch 0 261 545 076
0,5V = 0 MPa
4,5V = 1 MPa



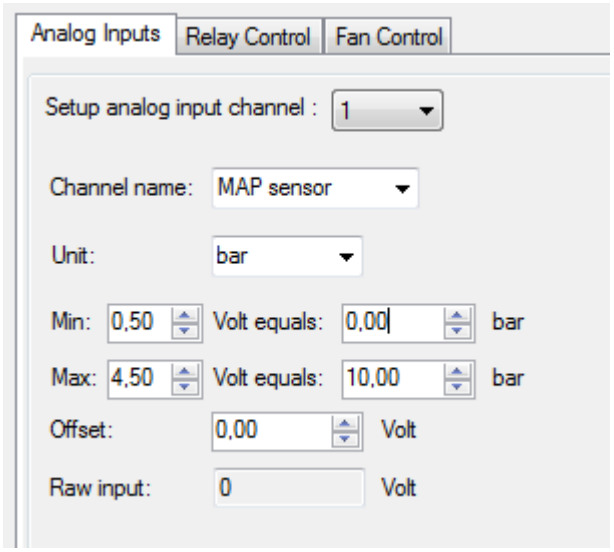
Corresponding Analog Input setup:



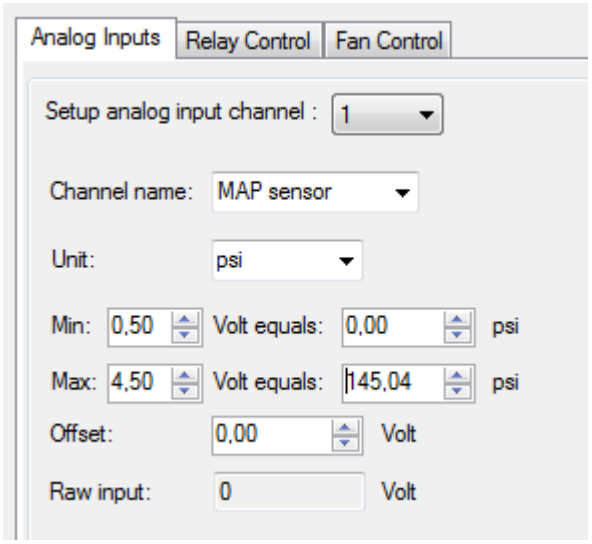
Converting units

In the example above we used MPa as unit.
If you wish to use different units please modify the name in the "Unit" field and the manually re-calculate new values for the sensor interpolation.
There are a lot of online-unit conversion tools you can use, for example: Digital Dutch

Example - same sensor as mentioned in above example
Corresponding Analog Input setup, converted to bar:



and converted to psi:



Offset. Raw input

In many cases an Workshop Manual will give you information on the specific sensor voltage output in relation to measured value (pressure, TPS etc...)
These sensor characteristics are valid when the output voltage is measured directly at the sensor.

Most of the time tuners will use longer lead wires and needles to puncture the actual vehicle wiring or connector and read the voltage at the sensor directly.
Non the less - due to resistance of lead wire - the actual voltage read at the screw terminal of the ADAQbase or ADAQexiom will be lower.

To compensate for this loss you can use the "Offset" field to match the actual voltage at screw terminal with voltage directly at sensor.
Adjust the value in positive or negative to your liking.

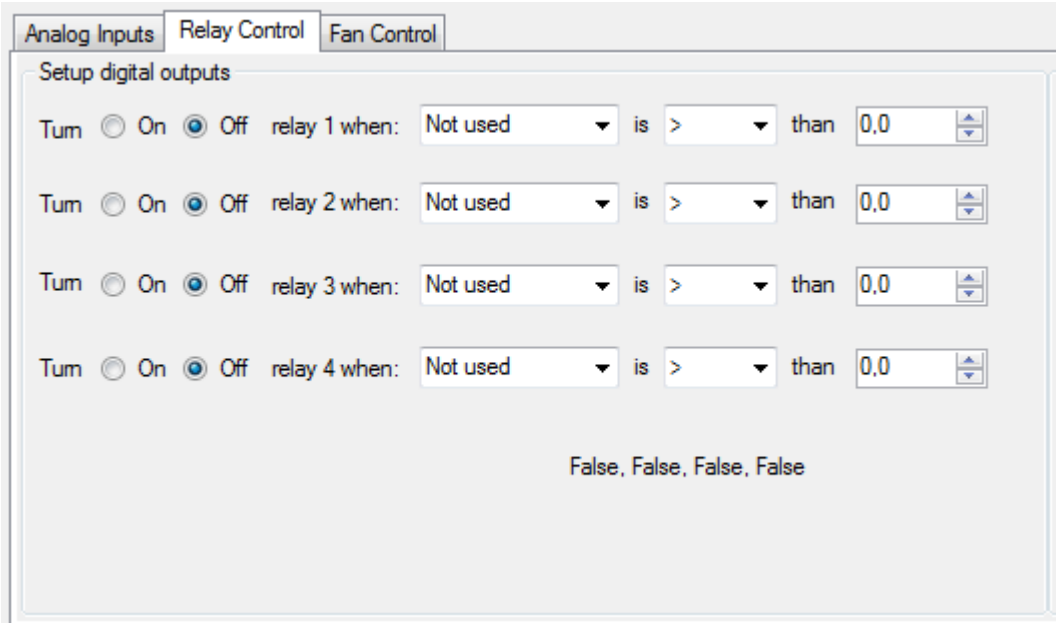
This field shows the current reading of the selected Analog Input channel.
Compare this reading with an Multimeter reading directly at signal source and adjust "Offset" if necessary.

Relay control

The ADAQexiom module offers four relays.
Every relay can switch max. 24V 5 Amp (8 Amp peak load.
You can use these relays to switch on and off various devices such as external lambda controllers, fans (via high-voltage relay), lights etc.

Automatic relay operation using logic conditions

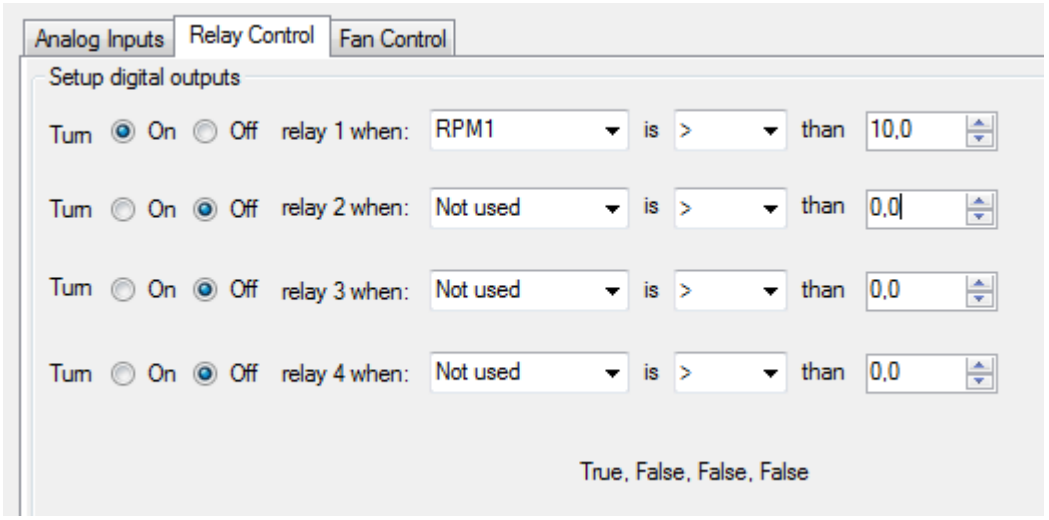
The relay control can be automated using logic values defined for any given input channel.:



ⓘ Relay Control logic has highest priority.
This means that the "Off" status cannot be manually overridden as soon as logic parameter is True.

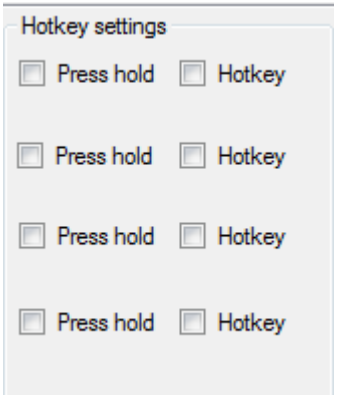
Example
An under-body light, that illuminates the bottom of the car during strapping, should turn ON whenever the vehicle is not moving (roller RPM is close to zero).
To accomplish such task following steps must be taken:
1. Wire the light power switch via an high-voltage relay, which in turn is activated by ADAQexiom 24V relay.
Alternative an 24V LED light can be switched by ADAQexiom directly, without the need for high-voltage relay.

2. Setup Relay Control as follow:



Since the RPM1 (which is by default Roller RPM in dynoKRAFT dynos) is currently below 10, thus the condition is True.
This means that the Relay 1 is turned ON.

Hotkey settings

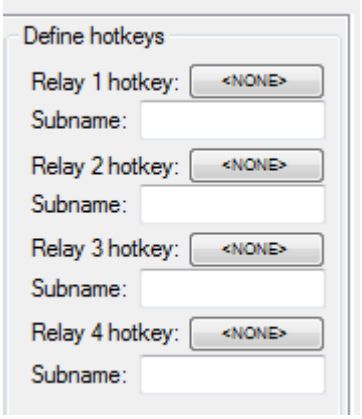


Set corresponding checkbox to activate required behavior of specific Relay.

Press hold:
This function is not active.

Hotkey:
Activate to use Hotkey to operate an Relay.

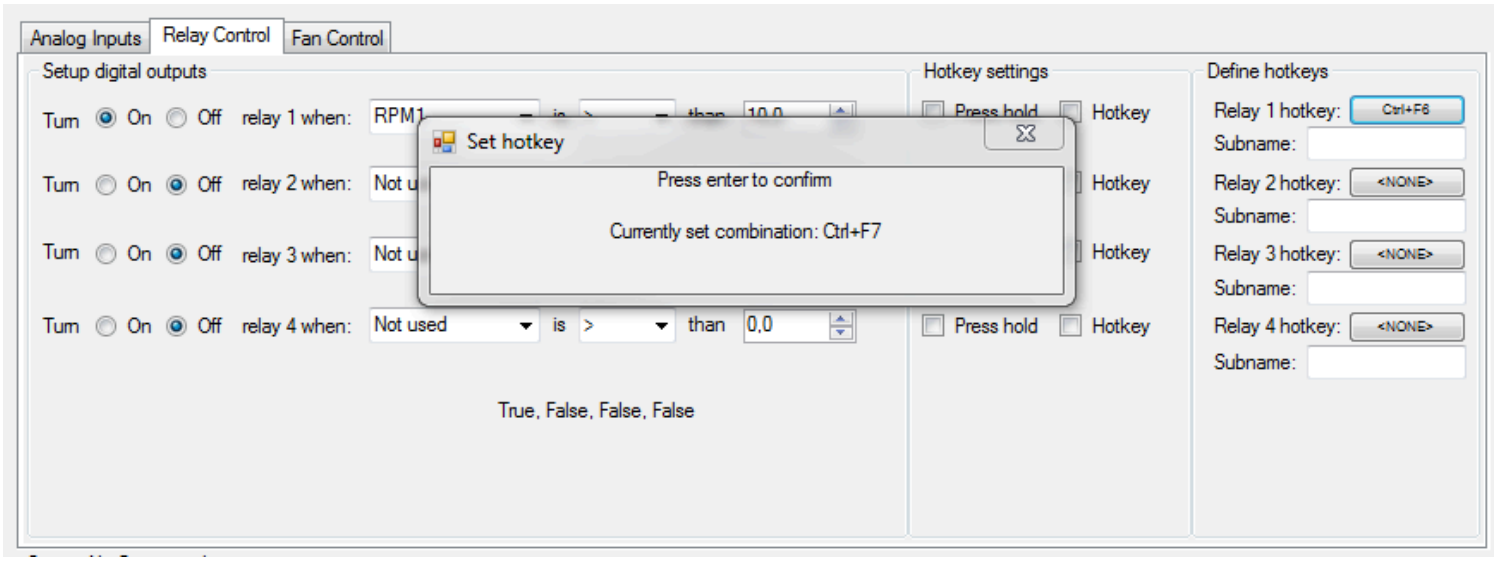
Define Hotkeys



Hotkeys

Press the button (default <NONE>) to assign an Hotkey for specific relay.

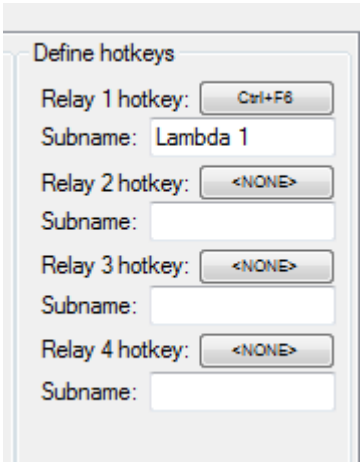
Press the Hotkey (or combination) you wish to use and confirm with Enter.



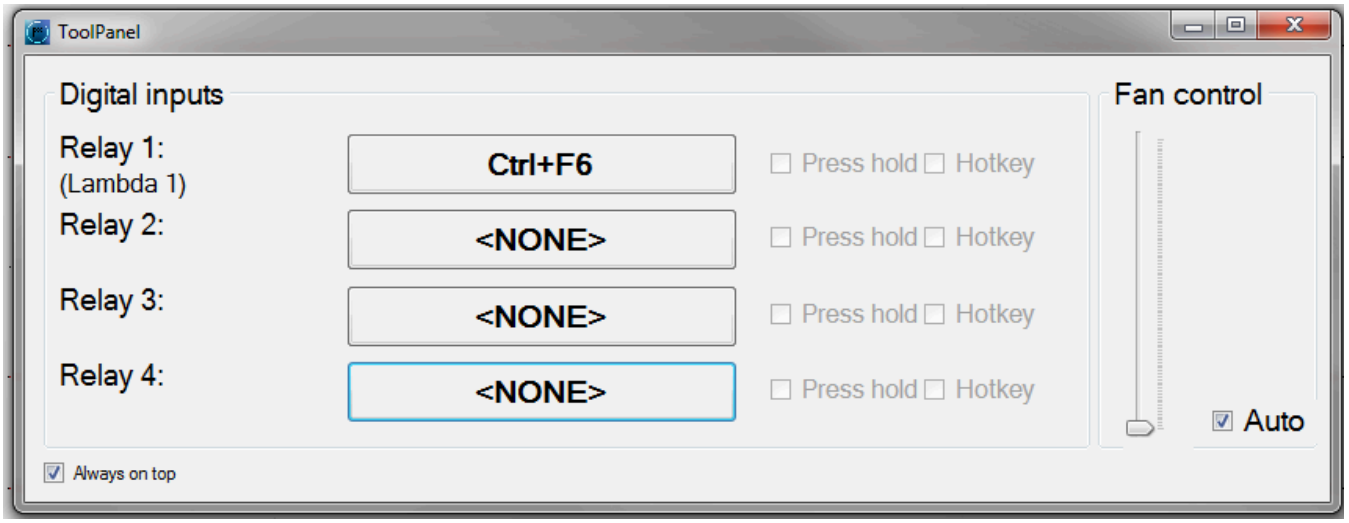
Subname

Use this field to change the name of the Relay.

This name will then appear in the ADAQexiom Quick Access Tools.



ADAQexiom Quick Access Tools view:



After modifying the Subname please click on any other field with mouse cursor to save the setting (lost focus control).
If you directly close the ADAQexiom Configuration window without clicking on any other field the Subname will not be saved.

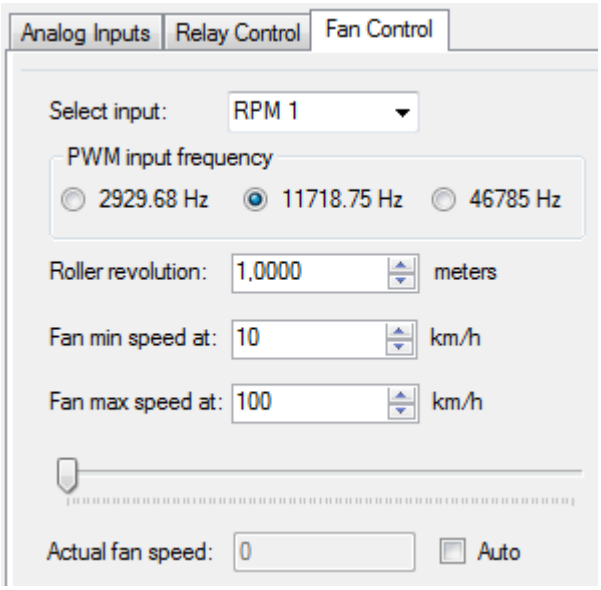
Fan Control

The ADAQexiom module offers an dedicated signal to control cooling fan output depending on driving speed.
The control signal is an PWM 0-5V

Setting up the PWM output

1. Select the correct roller RPM input channel.
In dynoKRAFT dynos the default channel is RPM 1.

2. The PWM Frequency can be set via Radio Buttons.
When using dynoKRAFT CFM24 cooling fan please set the frequency to 11718,75 Hz.



3. Roller revolution:
Here enter the distance traveled with one roller revolution.:

M120-pro, M200-evo, xM200-evo
440mm Roller -> 1,3823 m

A200 / A330-series
515mm Roller -> 1,6179 m

A380-series
640mm Roller -> 2.0106 m

4. Setup the min. and max. driving speed for which the cooling fan output will range between 0 and 100%
For dynoKRAFT CFM24 please use 10 and 100 km/h

The Fan min speed value cannot be lower then 10 km/h.
This is to prevent ventilator "creeping" which may occur when the Roller RPM sensor is in "high" level because the signal disc teeth is in front of the Hall-Sensor head.

Manual and Automatic operation

To manually set any given output level please deactivate the "Auto" checkbox then use the slider:

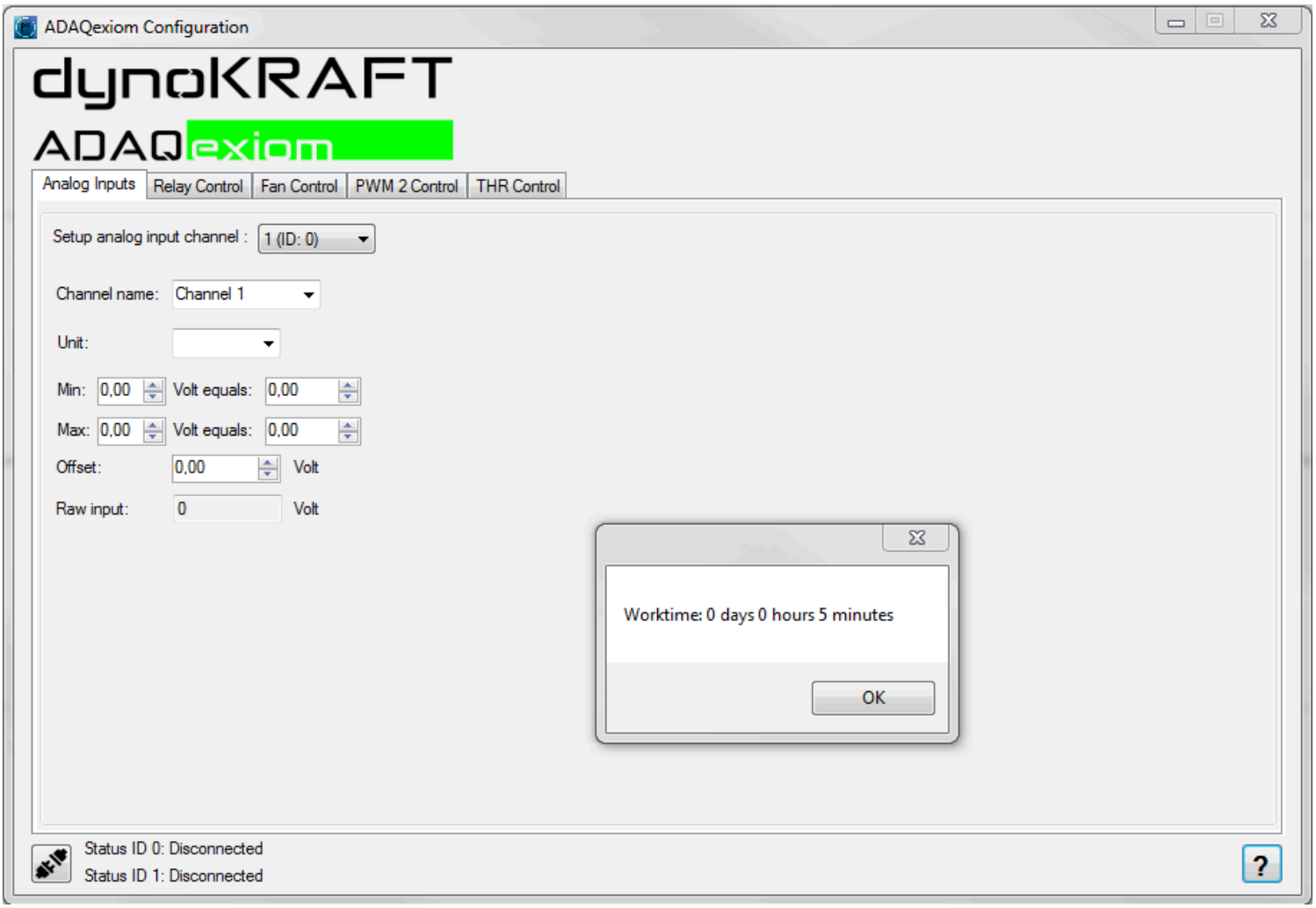
To revert back to automatic operation mode please activate the checkbox "Auto"
The "Max out" operation mode will turn the fan to 100% output as soon as the min. speed has been reached, resulting in ON/OFF operation type.

The "Auto" checkbox setting in Configuration window may be overridden by the same function found in Quick Tools panel as soon as it's opened.

Operation Hours counter

To see how many hours the dynamometer is in use please press on the "?" mark in the ADAQexiom Configuration window.
Another pop-up will show up with Worktime Counter.

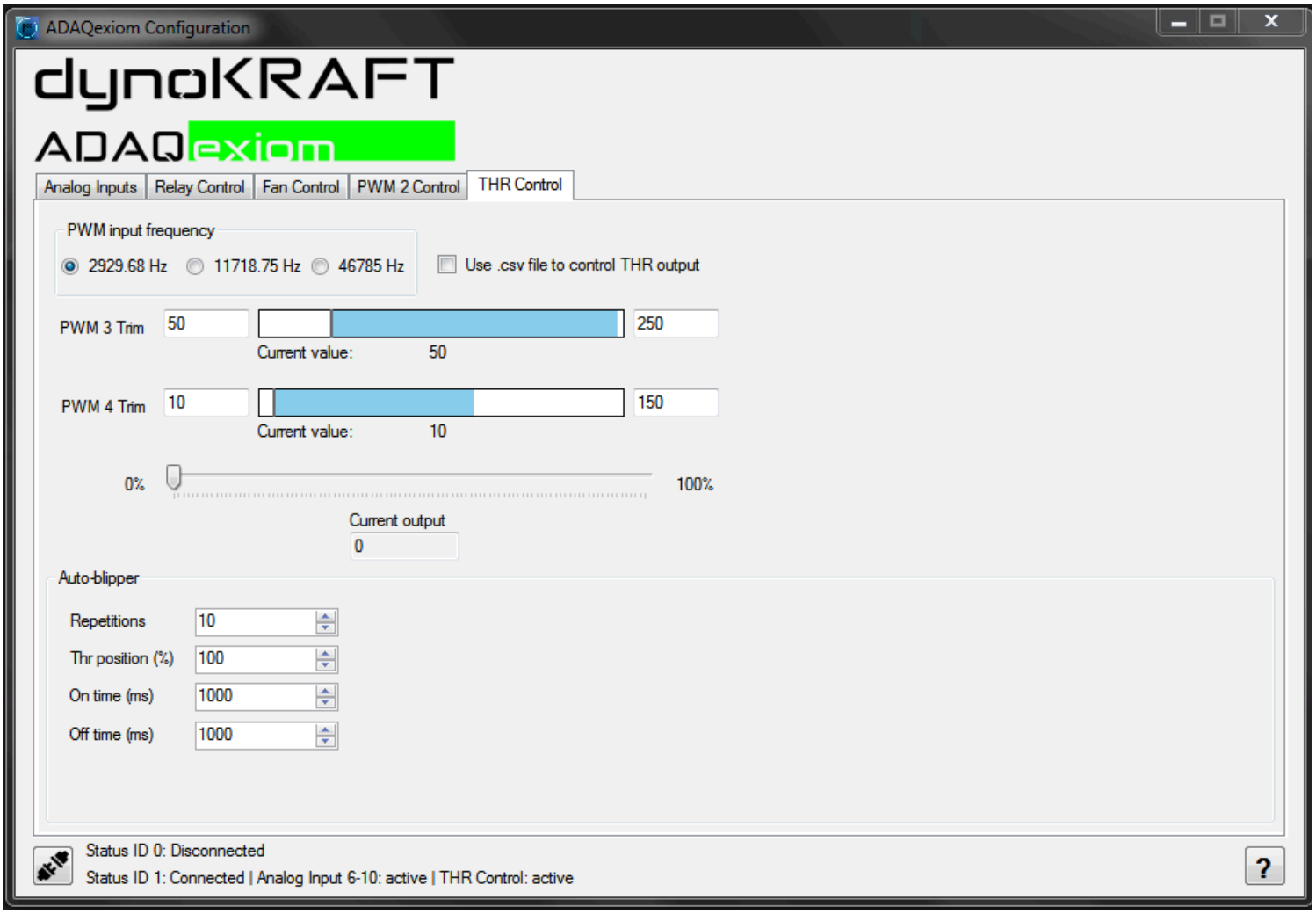
NOTE
The Operation Worktime Counter is saved in Windows registry. Therefore when uninstalling the ADAQ Software do not use any type of "Uninstaller" Software that scans for Registry Entries in Windows.
If you delete the respective Windows Registry Entry when uninstalling the software you'll reset the Worktime Counter value.



THR Controll (ID:1)

This function allow users to use both Digital Outputs O1 and O2 to simulate ride-by-wire signal, in combination with external signal amplifiers/converters to convert the 0-5V PMW signal to linear, analog 0-5V or any other signal type and range, depending on setup.

Use TRIM function to adjust output voltage levels as needed.:



ⓘ Validate the voltage levels with multimeter prior to connecting these signals to vehicle electric system.

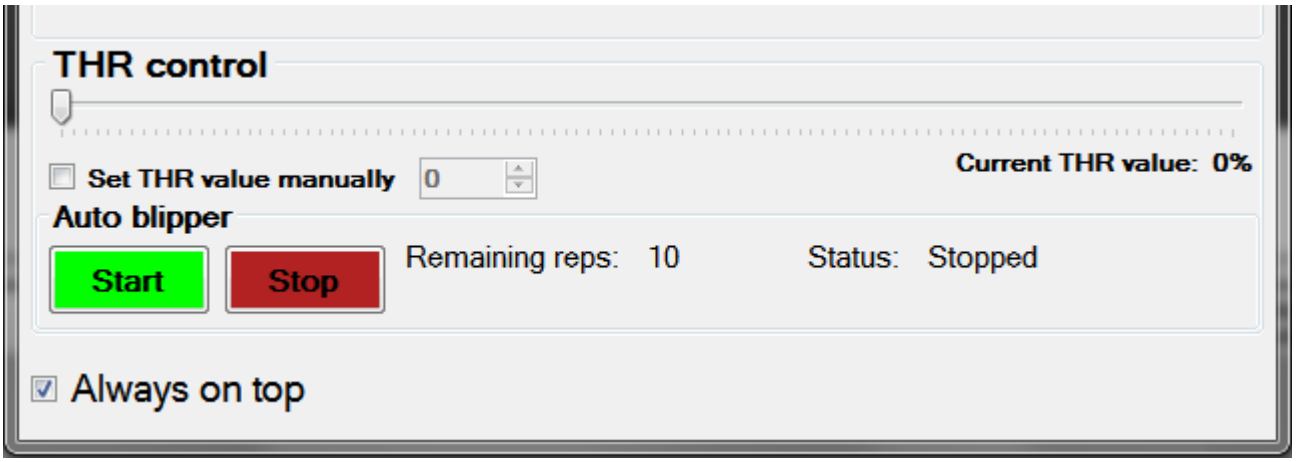
Once the TRIM is set to your needs both O1 and O2 outputs will generate linear voltage (PWM) output signal in relation to current THR slider (0-100%) position.

Auto-Blipper

This function can be used to automatically perform series of throttle "blips" in repetitions.
It is useful for example when braking-in an freshly rebuilt engine without the need of actually driving the vehicle on the dynamometer.

Adjust the *Repetitions* count, *Thr position in %* as well as *ON*- and *OFF- time* in milliseconds per your needs.
A good starting point is 100 repetitions, 20-25% throttle and ON-time ~300ms and OFF-time ~500-600ms.

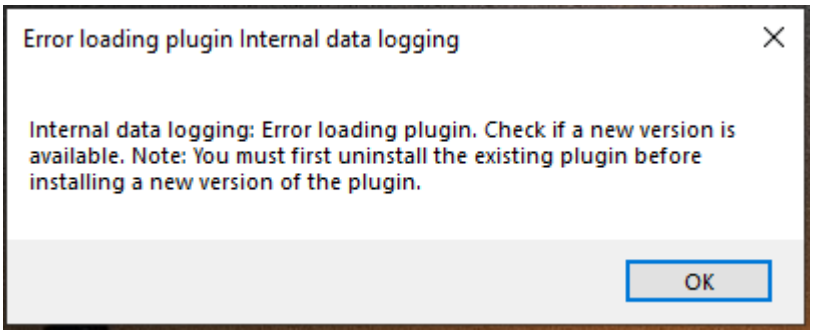
The Auto-Blipper is activated from Quick Access Tools window using START and STOP buttons:



Trouble-Shooting

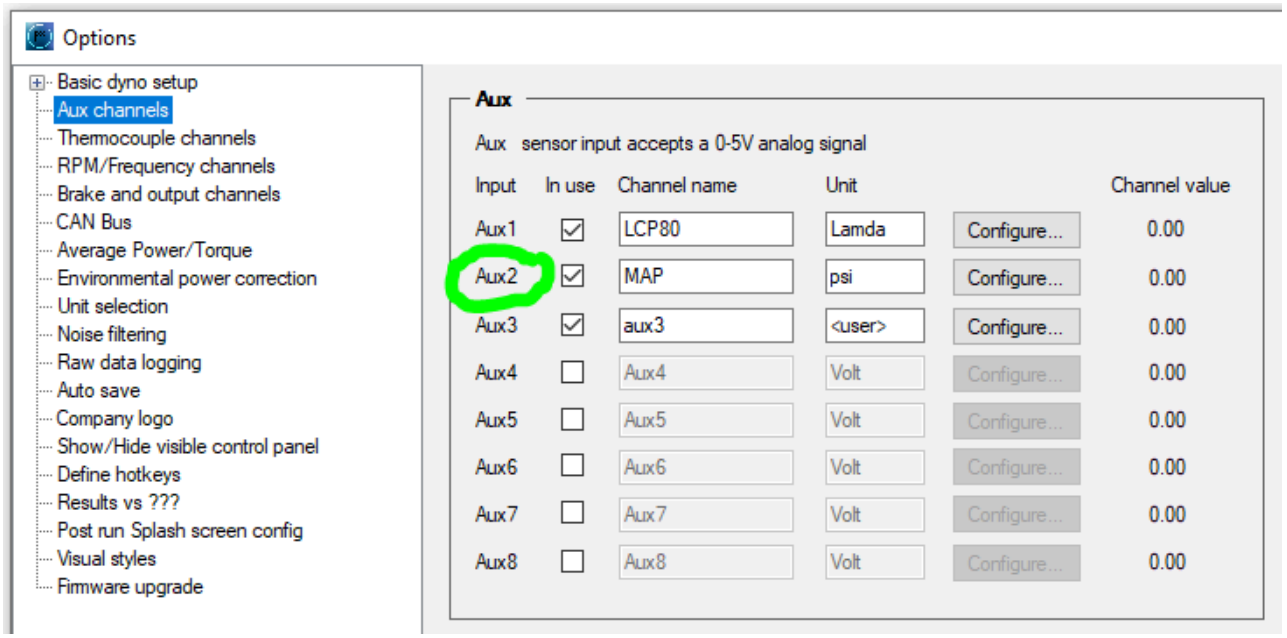
Error loading plugin Internal data logging

When using the ADAQexiom plugin with fresh YourDyno 3.3.59 or 3.3.75 installation you may encounter following error message when launching the YD software:

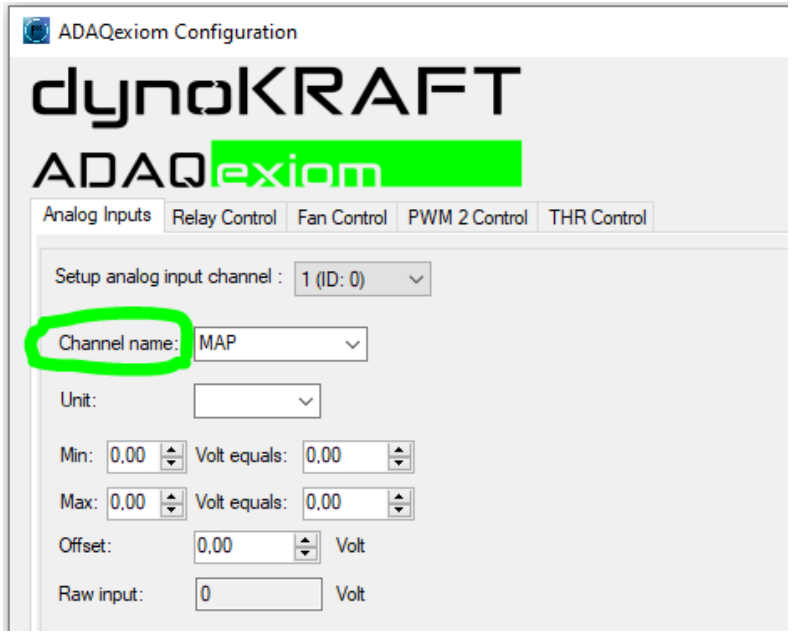


Root Cause

The root cause for this error is duplicated Channel Name. In most cases it's the conflict between Your Dyno Aux Channel Name and ADAQexiom Plugin Analog Input Channel Name:



vs:



Solution

Confirm the above error message with "OK" button and start the software.

Navigate to main software Options and rename the Aux *Channel name* **or** navigate the ADAQexiom Plugin configuration and in Analog Input tab rename the *Channel name* to different.

Restart the YourDyno software.