



GEKKO

ACOWA
INSTRUMENTS

User manual

GEKKO datalogger / AcowaZoo

122021



ACOWA
INSTRUMENTS

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GEKKO datalogger

About GEKKO

GEKKO datalogger has a robust industrial design.

GEKKO is designed for use in wastewater and water supply applications and can, by means of external equipment, be used for H₂S detection, level measurement, overflow recordings and the recording of rainfall events.

GEKKO can communicate via standard MODBUS TCP/IP, SMS commands or SigFox IOT protocol. Communication is via the built-in 4G or SigFox modem on its own PCB board. This allows for upgrading the communication platform to future communication forms without replacing the entire data logger.

GEKKO has a USB interface for programming and downloading of data. GEKKO can gather and log various types of data.

GEKKO is a Danish developed and produced product, and comply with all specifications for electronics components, for installation in harsh environments.

AcowaCore

About AcowaCore

AcowaCore is a data processing program, used to collect data from both our SigFox based FireFly and our 4G and SigFox based GEKKO data loggers, and transform it into a standard ModBus protocol. This data can hereby be returned directly to the user's own SCADA system, without any need for specified driver configuration.

As something quite unique, AcowaCore can process event-based logging from our GEKKO datalogger and return this data in a standard ModBus format that can be used in all SCADA systems. At the same time, AcowaCore allows all data on stormflow installations, profiles and conditions to be processed directly in AcowaCore. Therefore, the user only needs to make changes in the AcowaCore and not in the device itself.

What makes AcowaCore truly unique is the visualization platform AcowaDash. AcowaDash enables a custom interface that is intuitive and easy to understand. The individual users can be divided into different levels, so everyone is comfortable using AcowaDash.

Installation

Power supply

GEKKO must be connected to a supply voltage according to the specifications below

Voltage supply	2 x Lithium SAFT LSH20 or 12-30V DC
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Psychical measurements

For installation of the GEKKO, the following specifications may be required.

Dimensions	L=186mm, W=156mm, H= 60mm
Weight	620g without batteries
Cable connections	0.5–2,5 mm ²
Vibrations (sinus shaped)	10-500Hz, 1G
Free fall drop	30 cm
Enclosure class	IP 67

Installation environments

Humidity	10% - 95% non-condensing air.
Operation temperature	-20°C til +50°C
Storage temperature	-20°C til +60°C
Maximum operation elevation	Maximum of 2000m above sea level
Start-up time total	20-120 seconds (depending on the GSM network)

Build-in power supply

GEKKO has an internal power supply designed for supplying sensors and input and output signals. Power supply output + V:

Output voltage	15V DC
Output current	Max 100mA
Tolerance	+ / - 20%

Analog output

GEKKO is designed with two analog inputs 0-20 mA / 4-20 mA.

Numbers of analog mA inputs	2
Electrically isolated	No
Measuring range	0 / 4–20mA
Input impedance	Approx. 100 Ω
Measuring accuracy	+/- 1% of FS
Signal area	0-24mA / 0–30V DC
Signal frequency	Maximum of 100 Hz
Kabel / signal length	Maximum of 30m

Digital inputs with the option of 0-10V analog

GEKKO is designed with 4 digital inputs of which 2 can be selected as 0-10V analog voltage inputs.

Numbers of digital inputs	2 active low / 2 active high
Electrically isolated	No
Digital signal	Low < 1V / < 2,5mA High > 12V / > 4mA
Analog measuring range	0–10V DC

Analog signal impedance	Approx. 20K Ω
Measuring accuracy	+/- 1% of FS
Signal range (min / max)	0–30V DC
Signal frequency	Maximum of 100 Hz
Cable / signal length	Maximum of 30m

Operation

Overview



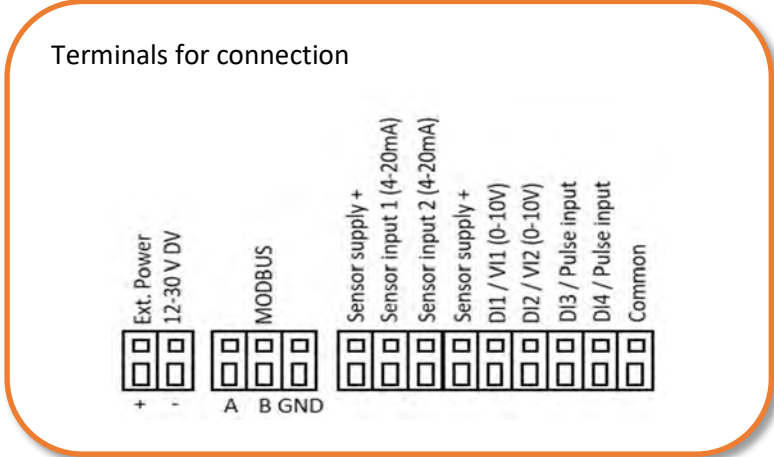
Power supply - battery.

Power supply - 10-30V DC.

SIM Card – Only in the 4G version.

USB connection – For connecting to a PC

Modem status – Flashes when the modem is connected to a GSM-network or when sending SigFox telegrams.



AcowaZoo

Connecting to a PC

USB connection

GEKKO connects to the PC via a Micro-USB connector on the side of the device. The AcowaZoo will then connect to the device for configuration. When the AcowaZoo program starts, it will continuously try to establish contact with a GEKKO device via USB connection.

AcowaZoo Installation

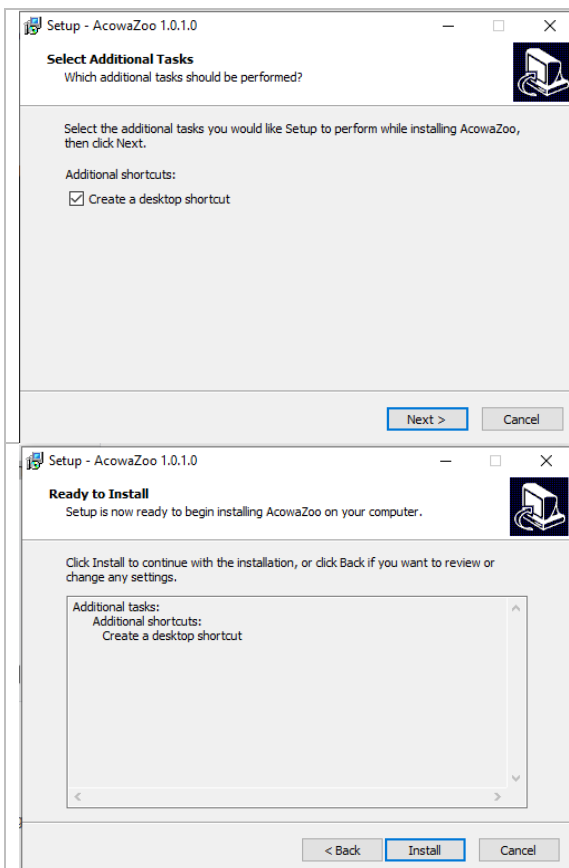
Driver installation

Before installing AcowaZoo on a computer running Windows 7 or Windows 8, an additional driver file for communication via the USB port must be installed.

Right-click on the file "fsl_ucwpx.inf" and select "install". Windows will ask for permission to install. The file is located in the "driver" folder under the "AcowaZoo" folder.

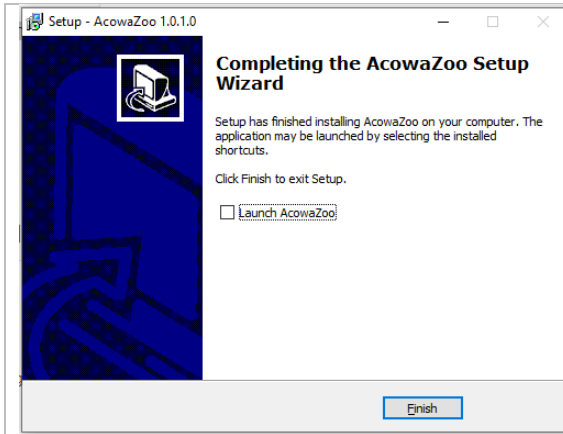
Program installation

AcowaZoo can be installed on computers running Windows 7, 8, or 10 or newer. Run the program "AcowaZooSetup.exe" ("AcowaZooSetup_32bit.exe" on 32-bit operating systems) and follow the on-screen instructions:



Choose if you want to create a desktop shortcut
Then choose *"Next"*

Choose *"Install"*



Choose whether to start ACOWA ZOO-Tool after installation.
Then choose *Finish*

Setup

AcowaZoo user interface

Overview







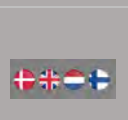
The screenshot shows the AcowaZoo user interface with several key areas highlighted:

- Function buttons (page 9):** Located at the top, this area contains icons for various functions like home, refresh, and help.
- Settings selection (page 10):** A sidebar menu on the left with a 'Settings' button and a 'GEKKO' device icon.
- Input settings (page 11):** The main content area showing configuration for 'AT 1', including signal labels, scaling, and alarm limits.
- GEKKO details (page 11):** A section on the left showing device information like 'Gekko Name', 'IP Address', and 'Port'.

Function buttons

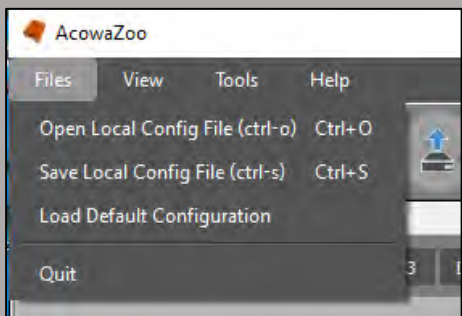
Functions associated with writing and reading from GEKKO og disk.

	<p>Open Local Config File Load configuration from hard drive, USB drive, etc.</p>
	<p>Save Local Config File Save configuration on hard drive, USB drive, etc.</p>
	<p>Load Default Configuration Select and load a typical GEKKO configuration</p>
	<p>Backup function Mirrors the counters etc. in the GEKKO</p>

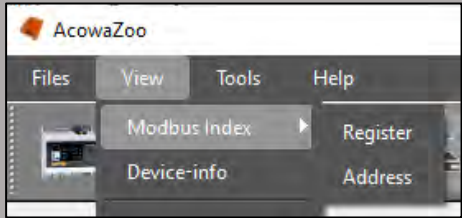
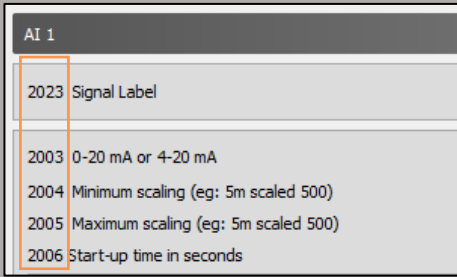
	<p>Load Config from Device. Load settings from the connected GEKKO device.</p>
	<p>Write Config to Device. Writes the current settings to the connected GEKKO device</p>
	<p>Device settings Advanced settings. (Further description on page page 13.)</p>
	<p>Show status. Supervision and status bits. (Further description on page 14.)</p>
	<p>Toggle Graphical and Schematic view Toggle between displaying graphical menu settings and displaying schematic settings (overview of ModBus registers in the GEKKO device)</p>
	<p>New AcowaZoo version available. Update AcowaZoo firmware (Is only shown when a newer version is available)</p>
	<p>Language Options Select application language.</p>

Function menu

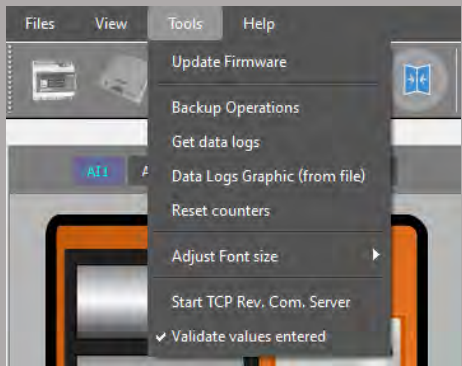
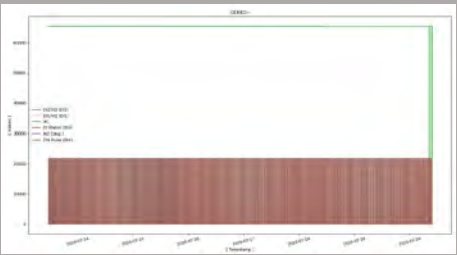
Files

	<p>Open local config file: Ability to load previously saved configurations.</p> <p>Save local config file: Ability to store configurations locally.</p> <p>Load default configuration: Retrieves a default file that you can continue working on.</p>
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View

	<p>ModBus index: Here it is possible to choose either register view or address view. The selected parameters will then appear next to each function. See the example below.</p> <p>Device info: Displays the firmware version</p>
	<p>ModBus registries: The selected parameters are displayed next to each function. The figures change in relation to the choice of address or register view</p>

Tools

 	<p>Update Device Firmware: Here, device firmware is updated. See below for further instructions.</p> <p>Bacup operations: Mirrors the counters etc. in the GEKKO</p> <p>Get data logs: Retrieve all data from the analog and digital inputs in the GEKKO datalogger. (To be used in connection with graphic display of data)</p> <p>Data logs graphic (from file): Visualization of retrieved data in graph. (See picture on the left)</p> <p>Reset counters: Resets all counters in the GEKKO datalogger.</p> <p>Adjust font size: Here, font size can be enlarged or reduced.</p> <p>Start TCP. Rev. Com. server:</p>
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Update device firmware

	<p>Acowa firmware updater: When choosing the firmware update, AcowaZoo shuts down and opens the Acowa firmware updater instead. Connect the desired device to update via the USB port.</p> <p>The status will change to: USB connected.</p> <p>Then press the folder "Open"</p>
	<p>Select the desired firmware file and choose "Open"</p>
	<p>The status is then changed to: Firmware loaded.</p> <p>Then click on the "Flash" icon</p>
	<p>The status is then changed to: Flashing.</p> <p>When the device is updated, it will state: Successfully flashed. The program must then be shut down and AcowaZoo reopened.</p>

Help

	<p>User Manual: Opens user manual</p> <p>About AcowaZoo: Displays the software version of AcowaZoo</p>
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Settings selection



Here you select which part of the GEKKO device's settings to display in the settings window on the right

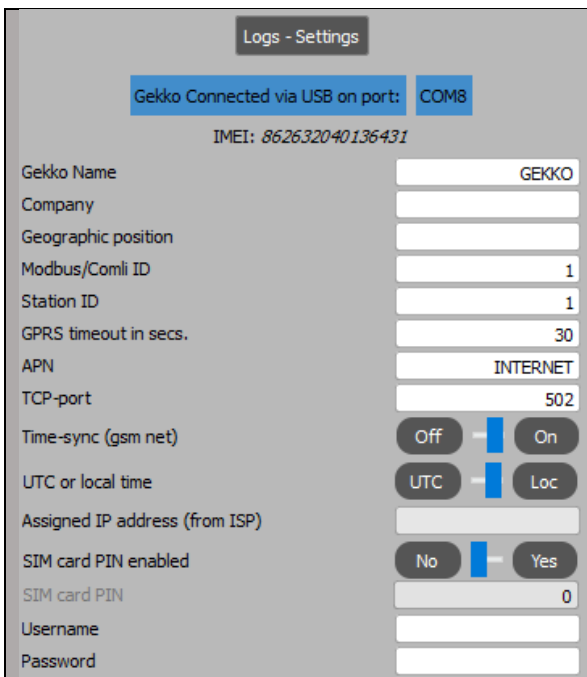
AI and AI2:

Settings for the analog inputs 1-2

DI1 – DI4:

Settings for the digital inputs 1-4

GEKKO details

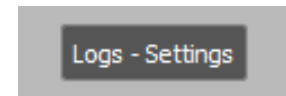
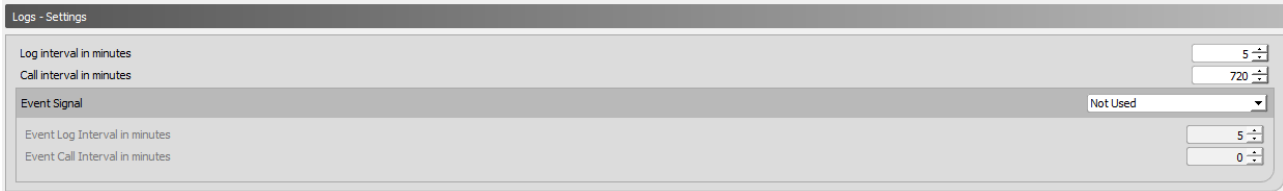


Here you will be notified if a GEKKO is connected and on which USB port it is connected.

- IMEI number used in connection with AcowaCore
- GEKKO name (Typical building number)
- Geographic location (Installation address)
- PLC ID (Not used)
- Station ID (Sequential number used for AcowaCore)
- APN for Secure networks
- TCP port (Typical port 502)
- SIM card PIN in use (used for PIN code)
- SIM Card PIN (To be filled in if necessary)

Logs - Settings

This section describes the settings for the data logger's call and log intervals.

Log interval in minutes	5
Call interval in minutes	720
Event Signal	Not Used
Event Log Interval in minutes	5
Event Call Interval in minutes	0

GEKKO data logger has options for a standard logging as well as an intensified logging in case of an event. Default log and call interval are always defined in the data logger.



Event Signal	Not Used
Event Log Interval in minutes	
Event Call Interval in minutes	

- Not Used
- AI1 - High Limit
- AI1 - Low Limit
- AI2 - High Limit
- AI2 - Low Limit
- DI1
- DI2
- DI3
- DI4
- AI1 - High Alarm Limit
- AI2 - High Alarm Limit

Event based logging enables a differentiated log and call interval compared to the standard log and call interval. It must be determined what starts the event-based log. This is done by selecting the desired option under event signal. Typically, it will be either a limit value (AI1 - High limit) on the analog input or a mechanical input (rocker or similar on DI3).

Input and output Settings

This section describes the settings for inputs and outputs as well as other logic in the GEKKO unit. The individual pages are selected in Settings selection (see above)



Analog Inputs (AI1 and AI2)

The analog inputs in the GEKKO is a standard 0-20/4-20mA input to which a pressure transmitter or other measuring equipment can be connected.

The input functions can be set in AcowaZoo when AI1 or AI2 is selected in the Settings selection. AI1 and AI2 contains the following settings:

Settings for AI1 and AI2	Function	Description
0-20mA OR 4-20mA	Scaling input defined by measurement equipment	
Minimum scaling	Minimum measurement reading value	With 2 decimals (500 = 5,00)
Maximum scaling	Maximum measurement reading value	With 2 decimals (500 = 5,00)
High limit in use	Activates high limit functions	0=disabled, 1=activated
High limit label	Naming the high limit value	Used in alarm list and SMS
High limit Set point	Defines high limit value	
High limit delay in secs.	Signal delay	Stated in seconds
High limit alarm call	Activates alarm signal	0=Local signal, 1=alarm signal
Low limit in use	Activates low limit functions	0=disabled, 1=activated
Low limit label	Naming the low limit value	Used in alarm list and SMS
Low limit Set point	Defines low limit value	
Low limit delay in secs.	Signal delay	Stated in seconds
Low limit alarm call	Activates alarm signal	0=Local signal, 1=alarm signal

The scaling of AI1 and AI2

It is possible to choose between 2 types of mA measurements. Either "0-20 mA" or the most common "4-20 mA". Min./Max. scaling points is entered at the desired resolution. For example, if a pressure transmitter with a measuring range of 0-5m is used, and you need to read the level in cm. Enter min. = 0 and max. = 500.

Limit relay values

Limit relay values can be configured for high/low limit levels. For both types of limits the function can be activated/deactivated, and the limit relay can be named with a label used as text in an alarm list and in SMS alerting.

Values can be set to which level the high/low limit relays are activated, and a delay can be attached, so that a limit value must be exceeded for a given time before the signal is registered as active. It is possible to choose whether to send the signal as an alarm or to act as a local alarm.

If an alarm (True overflow in progress) is desired, regarding the use of GEKKO for stormflow registrations, the limit value is set with the same value as the value for the overflow edge. Furthermore, checkmark the options "High limit relay in use" and in "Alarm at high limit in use".

Digital Input (I1-I4)

I1-2 input on the GEKKO logger can be used as either standard 0-10 V inputs, or standard DI where "0" <5V and "1"> 12V.

DI3-4 is either standard DI where "0" <5V and "1"> 12V or pulse inputs.

The input functions can be set in AcowaZoo when I1-4 is selected in the Settings selection. VI1-2 contains the following settings:



Settings for VI1-2	Function	Description
Signal label	Name of the signal	Used in alarm list and SMS
Input 1/6 - function	Selection of predefined functions	
Normally open / closed	The polarity of the signal	
Delay for ON-state in secs.	Signal delay	Stated in seconds
Delay for OFF-state in secs.	Signal delay	Not in use
alarm signal	Activates alarm signal	0=Local signal, 1=alarm signal
VI settings		
minimum scaling	Minimum measurement reading value	With 1 decimal. (20 = 2,0)
maximum scaling	Maximum measurement reading value	With 1 decimal. (20 = 2,0)
Middling in seconds	middling of the measurement reading value	
High limit in use	Activates high limit functions	0=disabled, 1=activated

Settings for VI1-2	Function	Description
High limit label	Naming the high limit value	Used in alarm list and SMS
High limit Set point	Defines high limit value	
High limit delay in secs.	Signal delay	Stated in seconds
High limit alarm call	Activates alarm signal	0=Local signal, 1=alarm signal
High alarm limit in use	Activates high Alarm limit functions	0=disabled, 1=activated
High alarm limit label	Naming the high limit alarm	Used in alarm list and SMS
High alarm limit Set point	Defines high limit alarm value	
High alarm limit delay in secs.	signal delay	0=Local signal, 1=alarm signal
High alarm limit alarm call	Activates alarm signal	0=Local signal, 1=alarm signal
Low limit in use	Activates low limit functions	0=disabled, 1=activated
Low limit label	Naming the low limit value	Used in alarm list and SMS
Low limit Set point	Defines low limit value	
Low limit delay in secs.	Signal delay	Stated in seconds
Low limit alarm call	Activates alarm signal	0=Local signal, 1=alarm signal
Low alarm limit in use	Activates low limit alarm functions	0=disabled, 1=activated
Low alarm limit label	Naming the low limit alarm value	Used in alarm list and SMS
Low alarm limit Set point	Defines low limit alarm value	
Low alarm limit delay in secs.	Signal delay	Stated in seconds
Low alarm limit alarm call	Activates low limit alarm signal	0=Local signal, 1=alarm signal

The following functions for DI-2 can be selected:

Standard DI function: Can be used to check the state of a desired digital signal.

Standard VI function (0-10V): Can be scaled, the scaled value can be displayed. High/low limits are attached to the signal, which can trigger an alarm if the limits are exceeded.

The following functions for D3-4 can be selected:

Standard DI function: Can be used to count pulses or check the state of a desired digital signal.

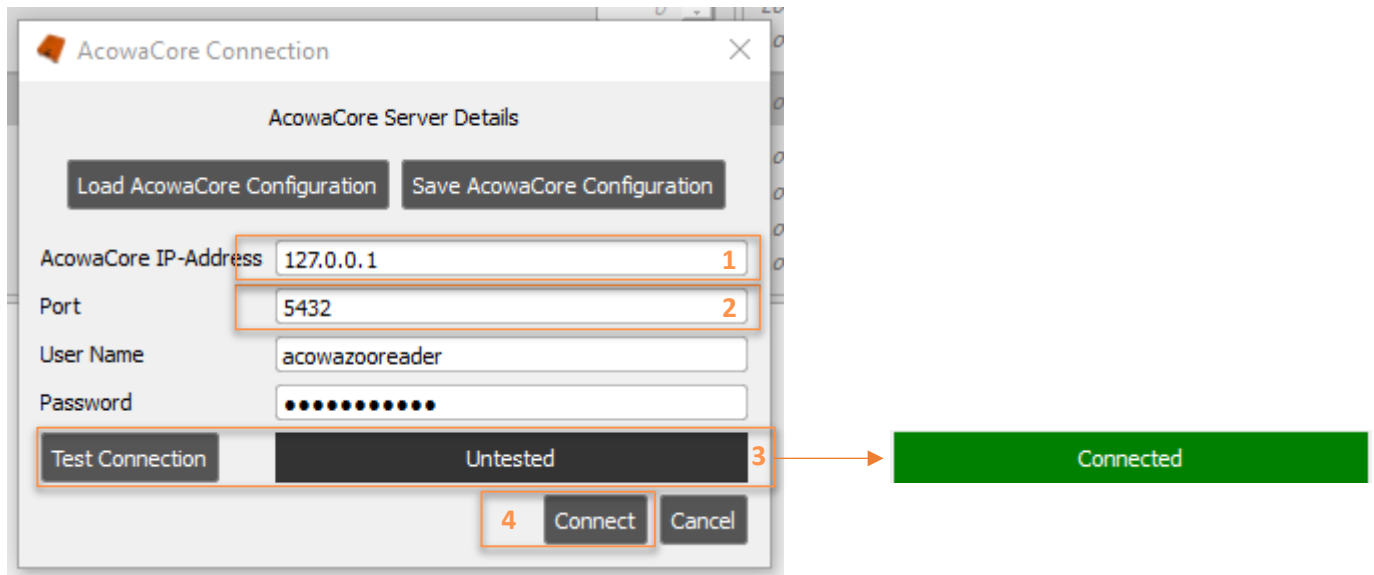
DI3 is further used for the function event signal (event log) for the use of e.g. a level switch. If an alarm is desired, the "Alarm signal" option is ticked.

Connection with AcowaCore

To activate the connection, click on the following symbol:



This results in the following window.



1. Enter the AcowaCore IP address in this field. If this is not known, it can be found on the server on which AcowaCore is installed.
2. Define port for communication (by default, port is set to 5432)
3. Can be used to test the connection, the field on the left side "not tested" changes to green with the text "connected" when everything is set up correctly.
4. Connect to AcowaCore. If this is selected, a similar image, as the one below, will appear.

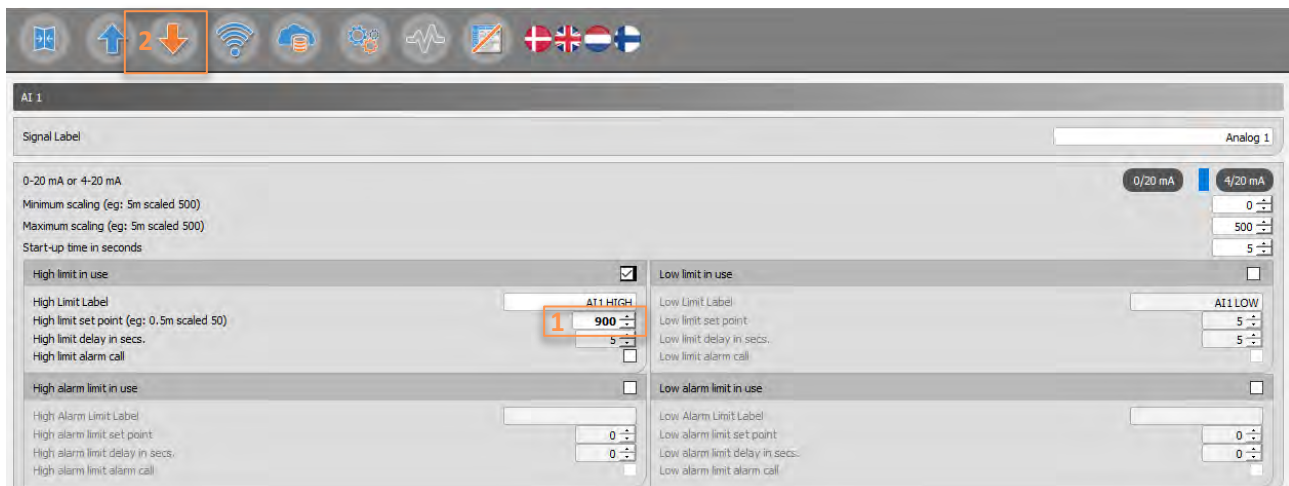


1	Location	Address	2	3	4
	Jakobs Skrivebord - æøå	Gekko Config Tester - æøå	15	None	Edit
	CEP Sommerhus	Beaver Test Spider	24	None	Edit
	Wasys Kontor	Gekko Config Tester 3	0	None	Edit
	Bredgade 34	Jeudan Spider 01	0	None	Edit
	Ny Kongensgade 10 - Altinget	Jeudan Spider 02	0	None	Edit
	Herstedvang Brønd 4	Jeudan Spider 03	0	None	Edit
	Frederiksborggade 22 / Linnésgade 20	Jeudan Spider 05	0	None	Edit

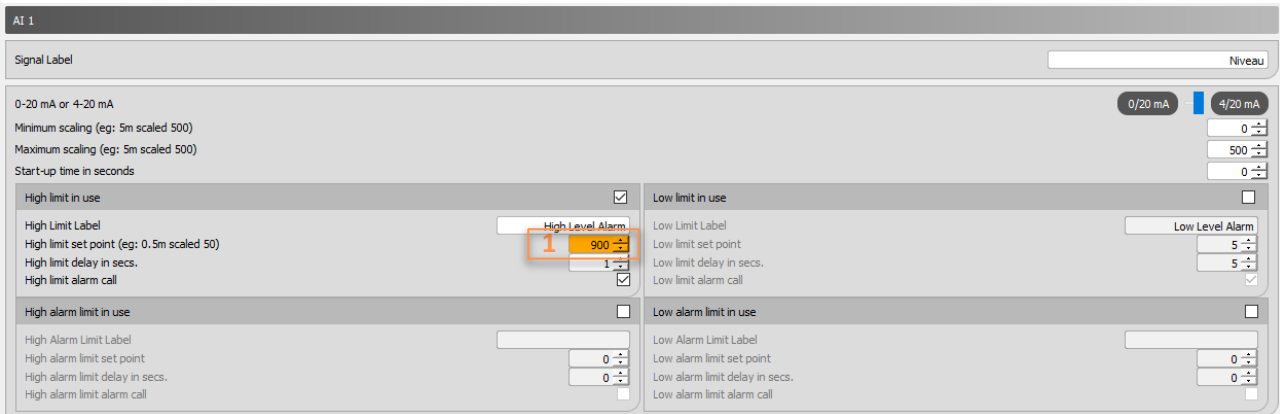
1. Identification of the individual device. This information is retrieved from AcowaCore and is therefore defined there.
2. Awaiting commits. List view of pending changes that need to be written to the data logger. At the next connection between AcowaCore and the data logger, these changes will be set in the data logger.
3. Last seen. The data and time of the last contact between the data logger and AcowaCore
4. Edit. Here you select which data logger you want to edit. When selecting a data logger, the configuration file is retrieved in AcowaCore and made available for changes in AcowaZoo. The image in AcowaZoo does not differ from the default setup images.



1. In the left side of the screen you will now see that GEKKO is connected via AcowaCore. It is important to emphasize that this is a device that is in "sleep mode" and thus you are not online with the data logger. Any setpoint changes will only be written to the GEKKO at the next communication. The call interval is defined under logs settings.
2. Here you can switch between the individual units. If the button is pressed, the menu showed above will reappear.
3. Close connection. Closes the connection between AcowaZoo and AcowaCore.



1. If a configuration change is made, the change is marked in **bold**.
2. After desired changes has been made, select "Write config to device" in the top menu bar



1. The box is now changed to an orange color and the change is written to AcowaCore and ready to be set in the data logger.

The screenshot shows the 'Available Gekkos' table in the AcowaCore interface. The table has columns for Location, Address, Awaiting Commits, Last Seen, and an Edit button. The 'Awaiting Commits' value for 'Wasys Kontor' is 8, which is highlighted with an orange box.

Location	Address	Awaiting Commits	Last Seen	
Jakobs Skrivebord - æøå	Gekko Config Tester - æøå	15	None	Edit
CEP Sommerhus	Beaver Test Spider	24	None	Edit
Wasys Kontor	Gekko Config Tester 3	8	None	Edit
Bredgade 34	Jeudan Spider 01	0	None	Edit
Ny Kongensgade 10 – Altinget	Jeudan Spider 02	0	None	Edit
Herstedvang Brønd 4	Jeudan Spider 03	0	None	Edit
Frederiksborggade 22 / Linnésgade 20	Jeudan Spider 05	0	None	Edit

If one wants to ensure that there are pending configurations in AcowaCore for the individual devices. The option “select GEKKO” can be used on the left side of the screen. The menu showed above opens and you will now be able to see that there are pending configurations on the individual GEKKO. The number indicates how many changes that have been made for the individual GEKKO’s.

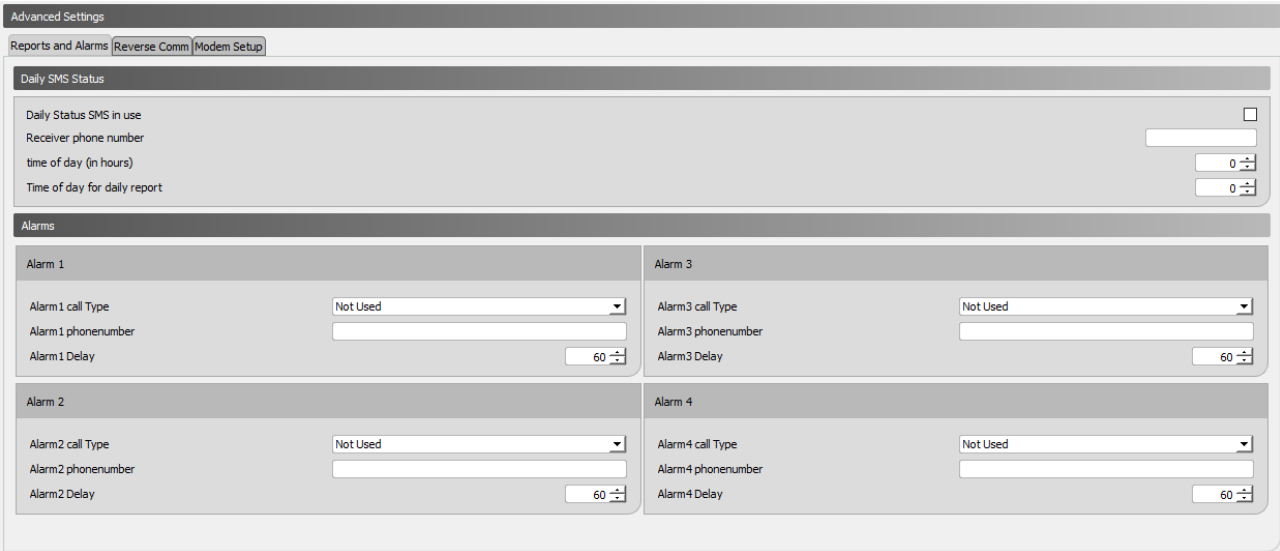
Device settings / advanced settings

To activate the Device settings, click on the following symbol:



This results in the following window.

Reports and alarms:



If the GEKKO is used as a stand-alone device that is not connected to a SCADA system via AcowaCore, it is possible to receive a daily status SMS and alarm SMS in case of an alarms.

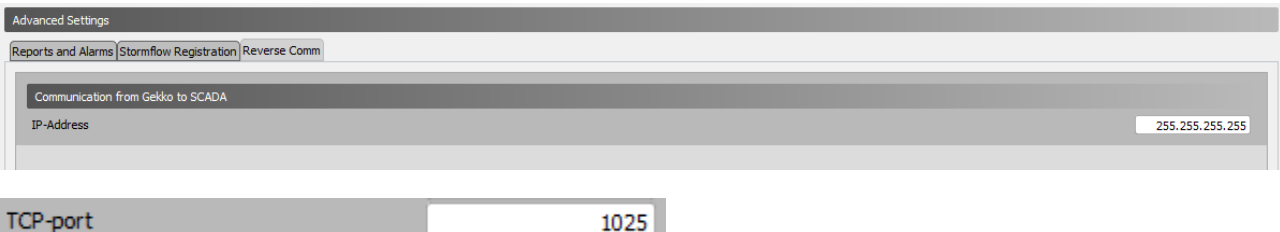
For daily status SMS, the following parameter must be used: "Daily status SMS in use" to activate the function.

"Receivers Phone Number." There is only one user who can receive a status SMS.

"Time of day (in full hours)" you want a status SMS for example 9:00 pm. enter the value 9.

Alarms can be sent to 4 different recipients. You can use SMS or standard dial-up. You must enter a delay between each alert in the list. For SMS, a typical delay of 60 sec. When using dial-up, it will typically be 300 seconds.

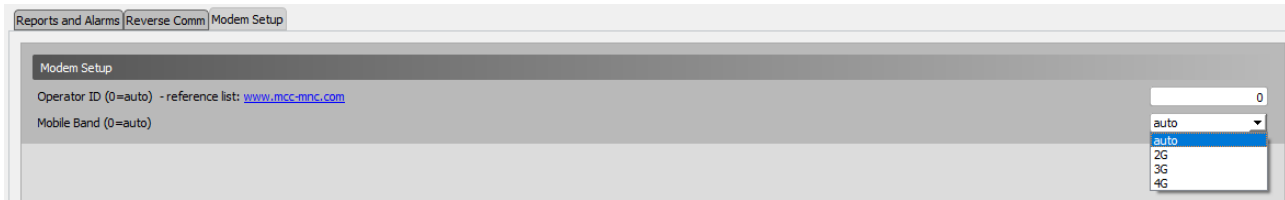
Reverse Comm (Rarely used):



Enter the IP address and TCP port of the server on which AcowaCore is installed. The GEKKO logger will then be a TCP client and connect to the SCADA system via AcowaCore.

Modem Setup:

To ensure optimized battery life, you can define the conditions for the modem in the GEKKO data logger under this menu.



It is possible to lock the data logger to a specific operator and mobile network. The desired operator ID can be found by clicking on the link for reference list. It can be an advantage to enter your mobile provider, as the GEKKO data logger will be assigned an IP address more quickly. Likewise, in some cases it can be an advantage to lock the data logger on a specific mobile band, this is typically done in case of poor 4G coverage or in cases where the SIM card doesn't support 4G. In these cases, the mobile band must be set for 2G communication only.

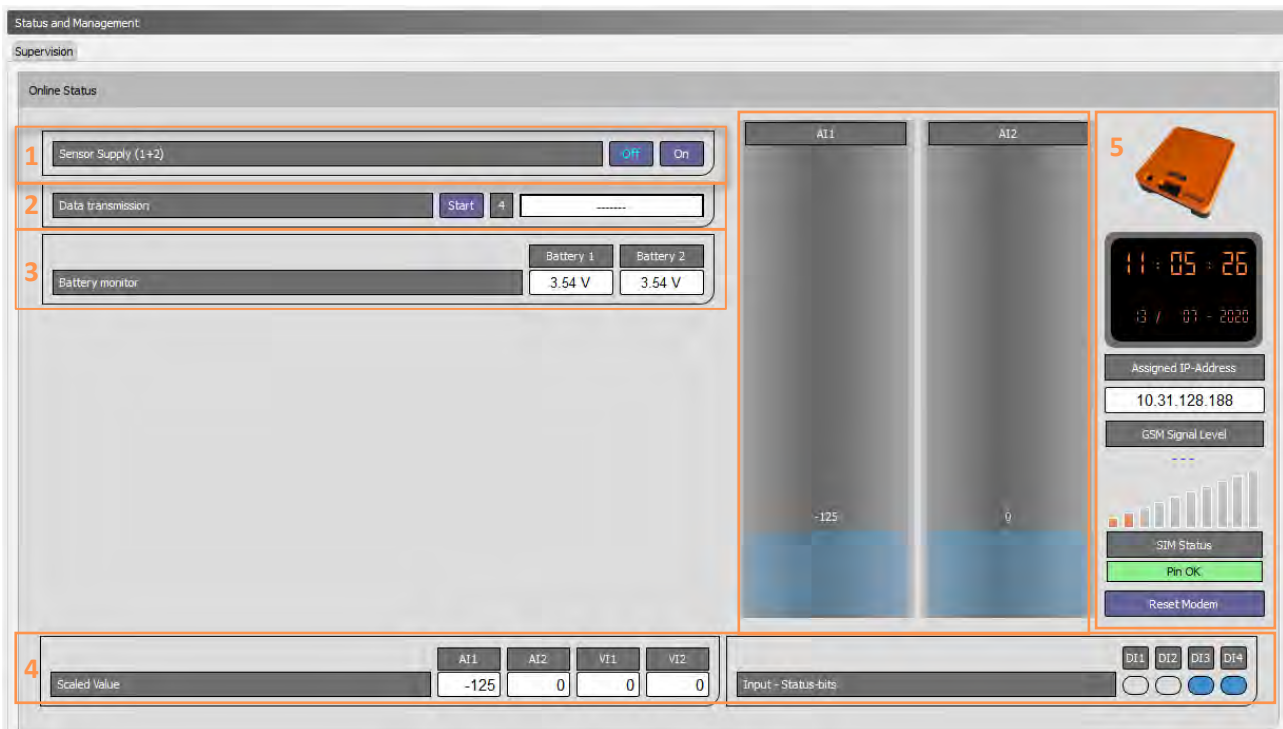
Show Status

Online status

To activate the Online window, click on the following symbol:



This results in the following window.



It is possible to switch the power supply for the analog inputs to on status, thereby making it possible to power and read a momentarily value from the measuring equipment which is connected (Point 4.).

1. By pressing start, the GEKKO data logger starts up its modem, thereby making it possible to test the signal strength, as well as see the assigned IP address (4G version only) (Point 5.)
2. The battery voltage status of both batteries can be read here.
3. Overview of the analog and digital inputs. Here you can find the status of your inputs on the GEKKO data logger. The analog values can be read as graph or as text.
4. Here you find the status picture of with the GEKKO datalogger's time, date and communication status. You will also find information about IP address (4G version only), GSM signal strength, when communicating the actual mobile band is shown beneath GSM Signal Level, as well as the time and date in the GEKKO is showed. GEKKO data loggers synchronize automatically with the GSM mast at 4G, if SigFox modem is used, time and date can be set via synchronization with PC. This is done by clicking on the box showing the time and saying yes to synchronization. Communication information is only available when the data logger is awake and communicating.

Graphical and schematic view

To activate the graphical and schematic view window, click on the following symbol:



This results in the following window.

Register	Register Name	Min	Max	Description	Value
1 2001	Modbus/Combi ID	0	247	Modbus/Combi ID	1
2 2002	Station ID	1	65535	Station ID	1
3 2003	AI - 0/20 mA or 4/20 mA	0	1	0-20 mA or 4-20 mA	1
4 2004	AI - 0% scale	-30000	30000	Minimum scaling (eg: 5m scaled 500)	0
5 2005	AI - 100% scale	-30000	30000	Maximum scaling (eg: 5m scaled 500)	500
6 2006	AI - Start-up time in seconds	0	60	Start-up time in seconds	5
7 2007	AI - high limit in use	0	1	High limit in use	0
8 2008	AI - high limit set point	-30000	30000	High limit set point (eg: 0.5m scaled 50)	90
9 2009	AI - high limit delay in secs.	0	60000	High limit delay in secs.	5
10 2010	AI - high limit alarm call	0	1	High limit alarm call	0
11 2011	AI - high alarm limit in use	0	1	High alarm limit in use	0
12 2012	AI - high alarm limit set point	-30000	30000	High alarm limit set point	0
13 2013	AI - high alarm limit delay in secs.	0	60000	High alarm limit delay in secs.	0
14 2014	AI - high alarm limit alarm call	0	1	High alarm limit alarm call	0
15 2015	AI - low limit in use	0	1	Low limit in use	0
16 2016	AI - low limit set point	-30000	30000	Low limit set point	5
17 2017	AI - low limit delay in secs.	0	60000	Low limit delay in secs.	5
18 2018	AI - low limit alarm call	0	1	Low limit alarm call	0
19 2019	AI - low alarm limit in use	0	1	Low alarm limit in use	0
20 2020	AI - low alarm limit set point	-30000	30000	Low alarm limit set point	0
21 2021	AI - low alarm limit delay in secs.	0	60000	Low alarm limit delay in secs.	0
22 2022	AI - low alarm limit alarm call	0	1	Low alarm limit alarm call	0
23 2023	AI - Label			Signal Label	
24 2033	AI - High Limit Label			High Limit Label	AI HIGH
25 2043	AI - Low Limit Label			Low Limit Label	AI LOW

In this menu you can get a full overview of all registers. Here you can directly edit in registers and see online values.

If you want to search for specific registers, you can use the filter function. The filter function can be applied to the register number, description and name.

If you want to see online or input values, select the tab with "online values" or "input registers".

If you want to filter, you can use the functions "start address" or "filter". If you use the start address, the desired address and the subsequent 100 registers are found. The filter function shows the specific search value. In case of changes, "reload data" is used to update the search function.

Address	Register	Value (s16)	Value (u32)	Value
1 200	201		65535	
2 201	202	4294967295	65535	
3 202	203		65535	
4 203	204	4294967295	65535	
5 204	205		65535	
6 205	206	4294967295	65535	
7 206	207	0	0	
8 207	208	0	0	
9 208	209		65535	
10 209	210	4294967295	65535	

Register list AcowaCore "quick-guide"

Analog	Signal	INT32	INT32	INT32	INT32	INT32
		Actual value	Setpoint for High limit	Setpoint for Low limit	Alarm for High limit	Alarm for Low limit
AI 1	4-20mA	20	22	24	8:0	8:2
AI 2	4-20mA	30	26	28	8:1	8:3
VI 1	0-10V DC	32	42	44	6:0	6:8
VI 2	0-10V DC	34	46	48	6:1	6:9
Description			"READ ONLY"	"READ ONLY"	"READ ONLY"	"READ ONLY"

Analog	Signal	INT32	INT32:BIT	INT32	INT32:BIT
		Setting for low limit 1	Alarm for low limit 1	Setting for low limit 2	Alarm for low limit 2
AI 1	4-20mA	2015	8:2	2019	8:3
AI 2	4-20mA	2585	8:6	2389	8:7
VI 1	0-10V DC	2089	6:8	2093	6:23
VI 2	0-10V DC	2163	6:9	2167	6:24
Description		"READ ONLY"	"READ ONLY"	"READ ONLY"	"READ ONLY"

Input	Signal	INT32	UINT32	UINT32
		Status/Alarm	Counter Amount total	Counter Duration total
DI 1	DI1 – VI1	4:0	500	540
DI 2	DI2 -VI2	4:1	502	542
DI 3	DI3 - Pulse	4:2	504	544
DI 4	DI4 - Pulse	4:3	506	546
Description				<i>(2 decimals)</i>

Log input	IR:INT16	INT32
Log interval		2887
Log interval (Event)		2889
Call interval		2568
Call interval (Event)		2445
Description		<i>(Minutes) "Read only"</i>
Analog log A1 10.000 points	0	
Analog log A2 10.000 points	10000	
Analog log V1 10.000 points	20000	
Analog log V1 10.000 points	30000	
Digital log DI1 10.000 points	40000:0	
Digital log DI2 10.000 points	40000:1	
Digital log DI3 10.000 points	40000:2	
Digital log DI4 10.000 points	40000:3	
Pulse counter log DI3 10.000 points	50000-59999	
Description	<i>(Read on input registers)</i>	

Counters	UINT32	UINT32	UINT32	UINT32	UINT32	UINT32	UINT32	UINT32	UINT32
	Amount today	Amount yesterday	Amount total	Duration today	Duration yesterday	Duration total	Volume today	Volume yesterday	Volume total
True overflow	100	128	156	108	136	164	116	144	172
Conditional overflow	102	130	158	110	138	166	118	146	174
Description	<i>(PCS.)</i>	<i>(PCS.)</i>	<i>(PCS.)</i>	<i>(Seconds)</i>	<i>(Seconds)</i>	<i>(Seconds)</i>	<i>(m³)</i>	<i>(m³)</i>	<i>(m³)</i>

System information	UINT32
Id number	0
GSM-signal	94
Description	<i>0-100% (0 decimal)</i>
Battery 1 voltage	58
Battery 2 voltage	60
Description	<i>(2 decimals)</i>

Time / Date stamping for data exchange	UINT32
Time since last GEKKO communication / reading in seconds (register is reset with each successful communication)	76
Seconds since 1970-01-01 (Unix time)	78
Seconds	80
Minutes	82
Hour	84
Day	86
Month	88
Year	90



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