

HWg-Ares 12/14

MANUAL



Package contents

A complete shipment contains the following items:

- HWg-Ares unit
- Printed manual + datasheet

Safety information

The device complies with regulations and industrial standards in force in the Czech Republic and the European Union. The device has been tested and is supplied in working order. To keep the device in this condition, it is necessary to adhere to the following safety and maintenance instructions.

Using the device in a manner other than prescribed by the manufacturer may cause its safeguards to fail!

The power supply outlet or disconnection point must be freely accessible.

In particular, the device must not be used under any of the following conditions:

- The device is noticeably damaged
- The device does not function properly
- Unfastened parts can move inside the device
- The device has been exposed to moisture or rain
- The device has been serviced by unauthorized personnel
- The power adapter or power supply cable are noticeably damaged
- If the device is used in a manner other than designed for, the protection provided by the device may fail.
- The local electrical system must include a power switch or a circuit breaker and overcurrent protection.

If you have any problems with installing or operating the device, please contact technical support:

HW group s.r.o.

<http://www.hw-group.com>

Email: support@HWg.cz

U Pily 3

143 00 Praha 4

Tel. +420 222 511 918

When contacting technical support, please note the exact type of your device (at the type plate) and, if possible, the firmware version.

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Basic features

- Quadband modem GSM 850 / 900 / 1800 / 1900 MHz
- Number of 1-Wire sensors:
 - Ares 12 – 3
 - Ares 14 – 14
- External antenna
- Support for PIN-protected SIM
- Alarm alerts
 - SMS (up to 5 phone numbers)
 - Ringing a specified number (up to 5 phone numbers)
 - Email (up to 5 addresses) with selectable priority
- User templates for SMS and Email alarms (different for each sensor)
- Periodic reminders about active alarms
- Per-sensor hysteresis settings
- Logs periodically e-mailed to up to 5 addresses (independent from Alarm addresses) with selectable priority
- Configurable global interval for storing measured values (15 minutes by default)
- Support for portal-based solutions with the HWg-PUSH protocol
 - Periodic data transfer
 - Data transfer when values differ by more than the specified tolerance
- Status request
 - SMS from a predefined number
 - SMS from any number containing a password
 - Ringing the device from a predefined number
- Internal memory for measured values: 2 MB – 170,000 records
- Simple configuration with an intuitive Windows utility
- Connects to PC over USB without special drivers (Mass Storage, HID)
- Power failure indication through a virtual input (supports alarms)
- Battery status indication (supports alarms)
- Option to activate/deactivate GPRS when roaming. SMS alarms and control still 100% functional
- Wall mount, DIN rail mount options
- Firmware upgrade over USB or GPRS (On the Fly – Over the Air)
 - Upgrade can be started with a SMS command
- Logging stops when Ares is connected to USB
- Sensors are automatically detected when the device is turned on
- Alarm information available immediately after powering up

Description of connectors and connections



LED indicators

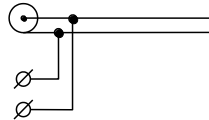
- **Alarm (red)** – Indicates alarm status. One or more sensors read outside of the allowed range, or an alarm at one or more inputs (2x Digital Inputs or external power supply indication).
- **Modem (blue)** – Informs about GPRS connection.
 - Fast blinking – GPRS connection is being established
 - On – Connection established
 - Slow / occasional blinking – Communication takes place
- **Status (yellow)**
 - Fast blinking – GSM connection is being established
 - Blinking 1x / second – Device works normally
- **Power (green)** – Power is connected. Blinks when the device runs on battery.

Inputs

2x Digital Input for connecting a voltage-free (dry) contact. Logic LOW (contact open) when the resistance between terminals is greater than 15 kOhm. Logic HIGH (closed contact) when the resistance is less than 2.7 kOhm. Resistances between these values are undefined.

Power

Power supply 9-30V/500mA can be connected to the power terminals or the power barrel connector. The terminals and the connector are interconnected and can NOT be used to connect two different power sources (e.g. adapter and back-up battery).



Sensors

2x independent port for connecting 1-Wire sensors, with support for 1-Wire UNI. Each port can be connected to a bus, maximum length is 60 m. The total number of supported sensors is a device-wide limitation, the sensors can be connected to one port or distributed among both ports in any way.

Caution: *There is a limit of two 1-Wire UNI sensors per port. Some 1-Wire UNI sensors may require an active hub – see 1-Wire UNI sensors.*

Sim Card

Standard plug-in SIM

GSM

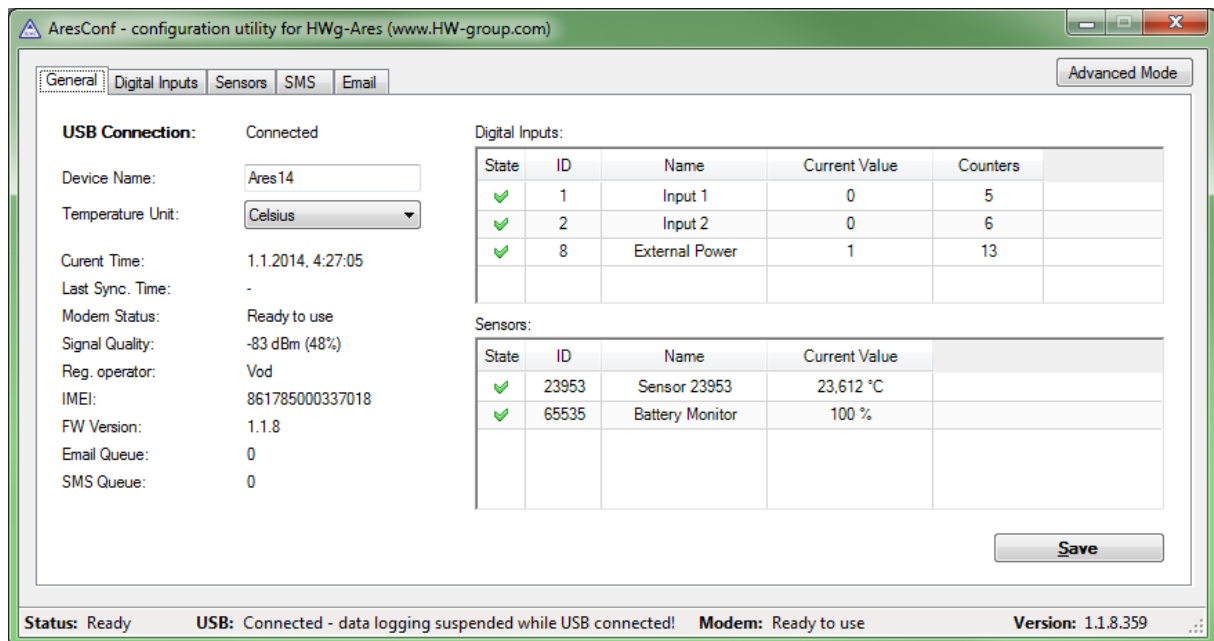
SMA connector for an external antenna. The external antenna needs to be QuadBand-capable and equipped with a male SMA connector. External antenna is required for proper operation of the device.

Specifications

GSM/GPRS	
Interface	Quad-Band 850/ 900/ 1800/ 1900 MHz, GPRS class 10/8 Compliant to GSM phase 2/2+ – Class 4 (2 W @850/ 900 MHz) – Class 1 (1 W @ 1800/1900MHz)
Supported protocols	IP: TCP, UDP, HTTP, SNTP, SMTP, HWg-PUSH
SNMP compatibility	Ver.1.00 compatible, partial ver.2.0 implementation
SENSORS	
Type	HWg original accessories: 1-Wire & 1-Wire UNI
Connector	RJ11 (1-Wire Bus)
Sensors	Ares12 - Up to 3 sensors Ares14 - Up to 14 sensors
Sensor distance	Up to 60m
DRY CONTACT INPUTS	
Port	I1, I2
Type	Digital Input (supports NO/NC Dry contact)
Sensitivity	1 (On) = 0-500 Ω (Right pin on the terminal block can be connected to 12V GND)
Max. distance	Up to 50m
POWER input	
Port	POWER 9-30V DC
Type	Main device power input (typically 500 mA)
Connector	Jack (barrel, inner 2.5 mm outer 6.3 mm) + Terminal Block
Physical parameters	
Temperature range	Operating: 5 to +50 °C (+41 to +122 °F) / Storage: -25 to +85 °C (-13 to +185 °F)
Dimensions / Mass	76 x 93 x 28 [mm] / 150 g
EMC	FCC Part 15, Class B, CE - EN 55022, EN 55024, EN 61000

First steps

Connect Ares to PC with an USB cable and open the ARES disk that appears. Double-click the AresConf application to start it. The General tab appears and shows the device status:



This tab gives information about sensors and digital inputs, together with graphical symbols for quick overview.

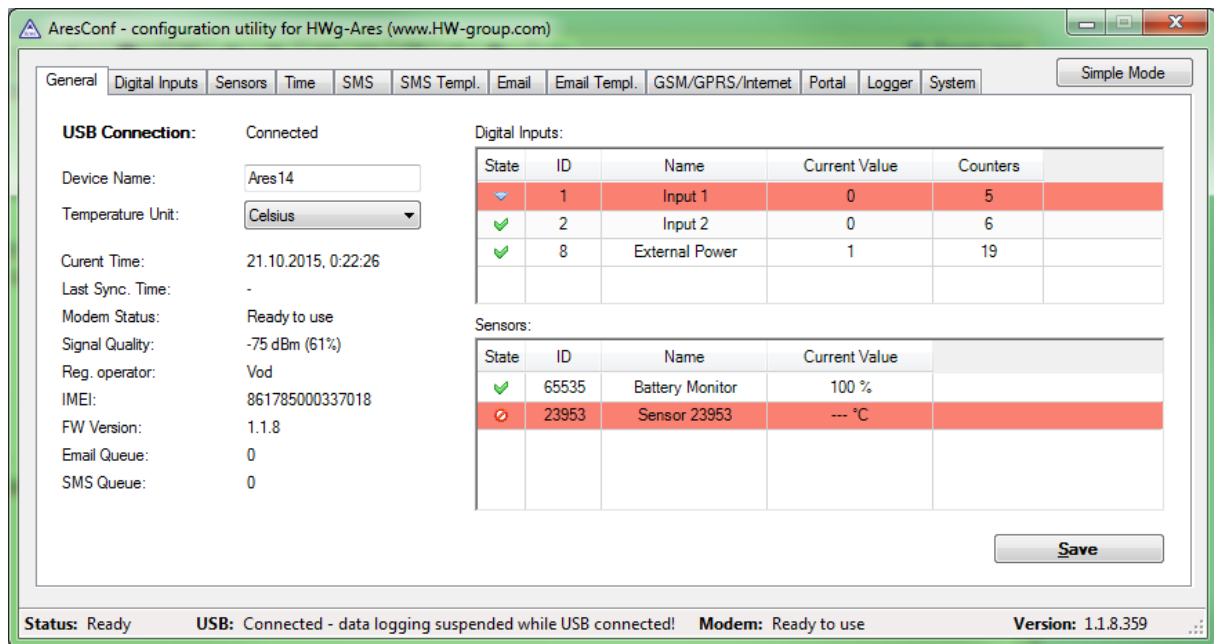
You can set the *Device Name* and the unit of temperature (°C, °F, K) here. The temperature unit changes about 5 seconds after pressing Save.

When starting the device for the first time, pay attention to the mobile network connection and signal strength information. If the signal is too weak, relocate the antenna. If the modem is unable to log in to the GSM network, check the PIN security code settings of the SIM. For details, see *Advanced settings*.

Digital Inputs, ID 8 – External Power is a system entry that indicates connected/disconnected external power supply. It is used to inform about power failures and battery-powered operation.

Sensors, ID 65535 – Battery monitor is a system entry that informs about the battery charge level.

All deviations from normal are indicated graphically:



Sensor connected, value within Safe Range (no Alarm)



Sensor disconnected (Alarm)



Sensor (Digital Input) out of range, upper threshold exceeded (Alarm)



Sensor (Digital Input) out of range, lower threshold exceeded (Alarm)

Digital Inputs tab

AresConf - configuration utility for HWg-Ares (www.HW-group.com)

General Digital Inputs Sensors SMS Email Advanced Mode

Digital Input List:

State	ID	Name	Value	Cnt	Name (0)	Name (1)	Alarm Alert	Email	SMS
✓	2	Input 2	0	6	OFF	ON	Disable	<input type="checkbox"/>	<input type="checkbox"/>
✓	1	Input 1	0	5	OFF	ON	Disable	<input type="checkbox"/>	<input type="checkbox"/>
✓	8	External Power	1	13	OFF	ON	Disable	<input type="checkbox"/>	<input type="checkbox"/>

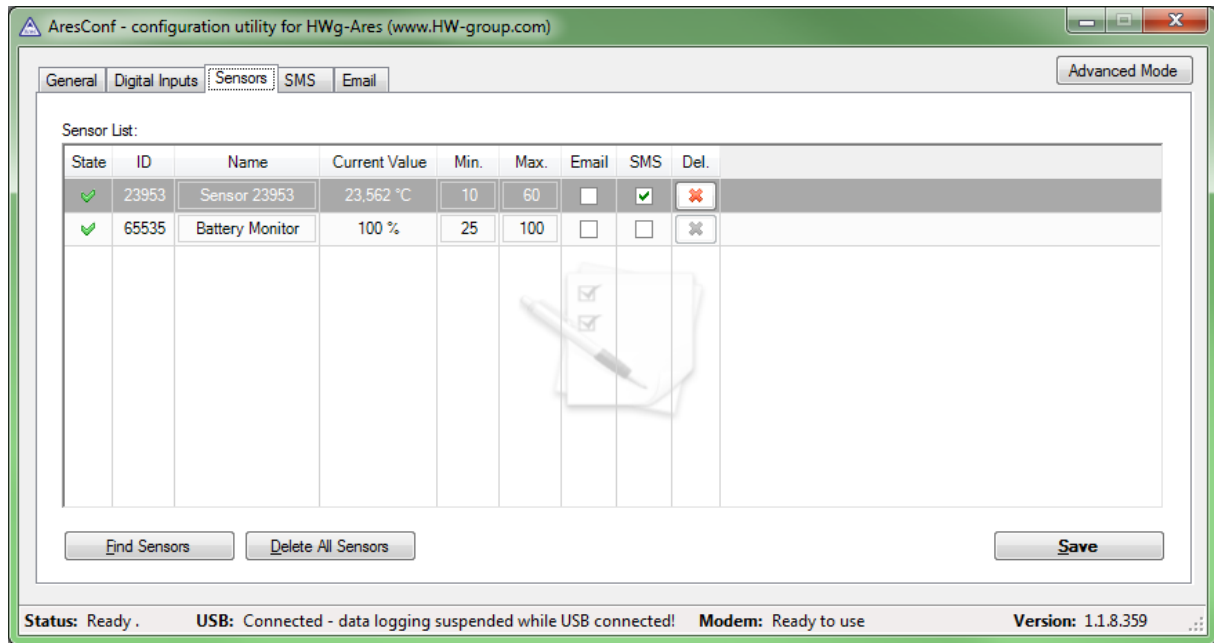
Clear All Counters Save

Status: Ready , USB: Connected - data logging suspended while USB connected! Modem: Ready to use Version: 1.1.8.359

Use this tab to configure basic properties of digital inputs:

- **State** – Graphical information about input states (same as on the General tab)
- **ID** – Unique sensor ID
- **Name** – Digital Input name, used for easier overview and for further processing in other systems
- **Value** – Current input state:
 - 0 – Open (power disconnected)
 - 1 – Closed (power applied)
- **Cnt** – counter of input (example: Count pulses from energy meter)
- **Name (0)** – Name of the state when the input is Off (contact open)
- **Name (1)** – Name of the state when the input is On (contact closed)
- **Alarm Alert** – Specifies when the input is in Alarm:
 - **Disable** – Alarm is disabled for this input
 - **Active if ON (1)** – Alarm when the input is On (closed)
 - **Active if ON (0)** – Alarm when the input is Off (open)
- **Email** – Send an e-mail when the input is in Alarm
- **SMS** – Send a text message (SMS) when the input is in Alarm
- **Save** – Save all ganges
- **Clear All Counters** – set all counters to zero value

Sensors tab



Use this tab to configure basic properties of sensors:

- **State** – Graphical information about sensor states (same as on the General tab)
- **ID** – Unique sensor ID
- **Name** – Sensor name, used for easier overview and for further processing in other systems
- **Current Value** – Current sensor value
- **Min** – Lower limit of the Safe Range. If the value is less than MIN, Alarm is automatically set
- **Max** – Upper limit of the Safe Range. If the value is more than MAX, Alarm is automatically set
- **Email** – Send an e-mail when the input is in Alarm
- **SMS** – Send a text message (SMS) when the input is in Alarm
- **Del** – Remove the sensor from the list (e.g. when the sensor is disconnected). If the sensor remains physically connected, it will be detected again when the Ares unit is restarted. Sensor no. 65535 is a system entry and cannot be deleted.
- **Find Sensors** – Detect all connected sensors. By default, sensors are detected only when the unit is powered up. Sensors connected later must be discovered manually. Detected sensors are automatically added to the list.
- **Delete All** – Delete all discovered sensors. Sensor no. 65535 is a system entry and cannot be deleted.
- **Save** – Save all changes

SMS tab

AresConf - configuration utility for HWg-Ares (www.HW-group.com)

General | Digital Inputs | Sensors | **SMS** | Email Advanced Mode

Alarm Email Settings

Recipient 1:

Recipient 2:

Recipient 3:

Recipient 4:

Recipient 5:

Outgoing Server Settings

SMTP Server:

SMTP Port:

Username:

Password:

Secure Connection (SSL): ☒ No ☐ STARTTLS

General Email Settings

Outgoing Email Address:

Subject:

Report End of Alarm: ☒

Status: Ready USB: Connected - data logging suspended while USB connected! Modem: Ready to use Version: 1.1.8.359

Use this tab to configure alarm text message (SMS) recipients. Each recipient phone number is also authorized to request information from Ares 12 by dialing the unit's phone number and to send SMS commands without a password (see Advanced settings).

- **Recipient 1-5** – Phone numbers where to send alarm text messages (SMS)
 - **Ring-out** – Upon alarm, dial the given number. The phone rings for 15 seconds, or until the call is refused.
- **Report End of Alarm** – Users will be also informed when an alarm ends (global setting)
- **Send Test SMS** – Send a test SMS to all configured numbers
- **Save** – Save all changes

E-mail tab

AresConf - configuration utility for HWg-Ares (www.HW-group.com)

General | Digital Inputs | Sensors | SMS | **Email** | Advanced Mode

Alarm Email Settings

Recipient 1:

Recipient 2:

Recipient 3:

Recipient 4:

Recipient 5:

Outgoing Server Settings

SMTP Server:

SMTP Port:

Username:

Password:

Secure Connection (SSL): ☒ No ☐ STARTTLS

General Email Settings

Outgoing Email Address:

Subject:

Report End of Alarm: ☒

Status: Ready USB: Connected - data logging suspended while USB connected! Modem: Ready to use Version: 1.1.8.359

Use this tab to configure alarm e-mail recipients and parameters.

- **Recipient 1-5** – Addresses of recipients for alarm e-mails
- **Report End of Alarm** – Users will be also informed when an alarm ends (global setting)
- **SMTP Server*** – IP address or host name of the SMTP server to use for sending e-mail
- **SMTP Port*** – TCP port where the SMTP server listens
- **Username*** – Username for authentication to the SMTP server
- **Password*** – Password for authentication to the SMTP server
- **Show Password** – Display the actual password instead of asterisks
- **Secure Connection (SSL)***: No/STARTTLS – Enables encrypted authentication
- **Outgoing Email Address** – Sender e-mail address. E-mails will be sent to the recipients from this address.
- **Subject** – Subject prefix. Useful for adding a keyword to the e-mail subject in order to simplify mail filtering.
- **Send Test Email** – Send a test e-mail to all listed recipients
- **Save** – Save all changes

*Ask your network administrator or mobile carrier for this information.

Advanced settings

Advanced settings are enabled by pressing the Show in Advanced Mode button.

General tab

AresConf - configuration utility for HWg-Ares (www.HW-group.com)

General | Digital Inputs | Sensors | SMS | Email | Advanced Mode

USB Connection: Connected

Device Name: Ares14

Temperature Unit: Celsius

Current Time: 1.1.2014, 4:27:05

Last Sync. Time: -

Modem Status: Ready to use

Signal Quality: -83 dBm (48%)

Reg. operator: Vod

IMEI: 861785000337018

FW Version: 1.1.8

Email Queue: 0

SMS Queue: 0

Digital Inputs:

State	ID	Name	Current Value	Counters
✓	1	Input 1	0	5
✓	2	Input 2	0	6
✓	8	External Power	1	13

Sensors:

State	ID	Name	Current Value
✓	23953	Sensor 23953	23,612 °C
✓	65535	Battery Monitor	100 %

Save

Status: Ready USB: Connected - data logging suspended while USB connected! Modem: Ready to use Version: 1.1.8.359

This tab gives information about sensors and digital inputs, together with graphical symbols for quick overview.

- **Device name** – Device name. Useful for sorting in higher-level systems, or to tell apart several Ares units.
- **Temperature Unit** – Units used to work with temperature. The temperature unit changes about 5 seconds after pressing Save.
 - Celsius – °C
 - Kelvin – K
 - Fahrenheit – °F
- **Current Time** – Informs about the current system time set in the device. The time appears in the log of measured values.
- **Last Sync. Time** – Date and time of last time synchronization over the Internet. Useful for checking if the time synchronization works.
- **Modem status** – Information about the current modem status and readiness:
 - **SIM unplugged** – No SIM was found. Insert a SIM, or clean its contact pads.
 - **Modem initializing...** – Modem is being initialized. The device is establishing communication with the modem and making the modem ready for operation. This information should not appear for more than 10 s. Otherwise, it indicates a modem fault (see Troubleshooting).
 - **Invalid PIN** – PIN code stored in the Ares unit is incorrect
 - **PUK requested** – PUK code is needed (must be entered in a different kind of device)
 - **Ready to use** – Modem is registered to the carrier's network and ready for operation
 - **Dialing...** – Connection to the carrier is being dialed (necessary to establish GPRS connection). This information should not appear for more than 20 s. Otherwise, it indicates a modem fault (see Troubleshooting).

- **Configuring Internet...** – Internet connection is being configured (reading IP parameters)
- **Connected to Internet** – The modem is successfully connected to the Internet
- **Terminating Internet...** – Internet connection is being disconnected
- **Terminate** – Connection to the mobile network was terminated. This can appear when the device is being restarted, switched off, or when its battery is low.
- **Hanging...** – Dial-up connection is being hanged up
- - – Unknown state
- **Signal Quality** – GSM signal quality in dBm and as a percentage. The percentage should be as high as possible. If it is less than 50%, we strongly suggest to relocate the antenna or use a different mobile carrier.
- **Reg. Operator** – Regional GSM carrier. Indicates a successful connection to the GSM network, and the actual carrier when roaming.
- **FW version** – Current firmware version
- **Email Queue** – Number of outgoing e-mails waiting in the queue
- **SMS Queue** – Number of outgoing text messages waiting in the queue

Digital Inputs, ID 8 – External Power is a system entry that indicates connected/disconnected external power supply. It is used to inform about power failures and battery-powered operation.

Sensors, ID 65535 – Battery monitor is a system entry that informs about the battery charge level.

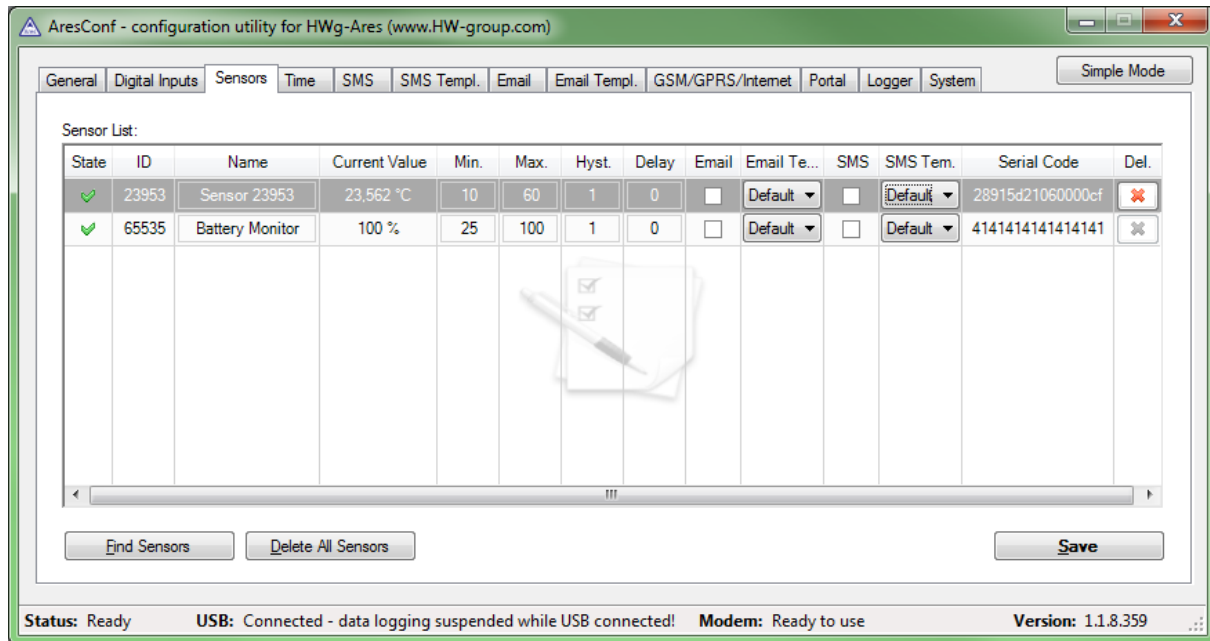
Digital Inputs tab

State	ID	Name	Value	Cnt	Name (0)	Name (1)	Alarm Alert	Delay	Email	Templ.	SMS	Templ.
✓	2	Input 2	0	6	OFF	ON	Disable	0	<input type="checkbox"/>	Default	<input type="checkbox"/>	Default
✓	1	Input 1	0	5	OFF	ON	Disable	0	<input type="checkbox"/>	Default	<input type="checkbox"/>	Default
✓	8	External Power	1	13	OFF	ON	Disable	0	<input type="checkbox"/>	Default	<input type="checkbox"/>	Default

Use this tab to configure basic and advanced properties of digital inputs:

- **State** – Graphical information about input states (same as on the General tab)
- **ID** – Unique sensor ID
- **Name** – Sensor name, used for easier overview and for further processing in other systems
- **Value** – Current input state:
 - 0 – Open (power disconnected)
 - 1 – Closed (power applied)
- **Cnt** – counter of input (example: Count pulses from energy meter)
- **Name (0)** – Name of the state when the input is Off (contact open)
- **Name (1)** – Name of the state when the input is On (contact closed)
- **Alarm Alert** – Specifies when the input is in Alarm:
 - **Disable** – Alarm is disabled for this input
 - **Active if ON (1)** – Alarm when the input is On (closed)
 - **Active if ON (0)** – Alarm when the input is Off (open)
- **Email** – Send an e-mail when the input is in Alarm
- **SMS** – Send a text message (SMS) when the input is in Alarm
- **Save** – Save all changes
- **Templ.** – Alarm message template. (See the *SMS Templ.* and *Email Templ.* tabs.) The template is set independently for each input.

Sensors tab



Use this tab to configure basic and advanced properties of sensors:

- **State** – Graphical information about sensor states (same as on the General tab)
- **ID** – Unique sensor ID
- **Name** – Sensor name, used for easier overview and for further processing in other systems
- **Current Value** – Current sensor value
- **Min** – Lower limit of the Safe Range. If the value is less than MIN, Alarm is automatically set
- **Max** – Upper limit of the Safe Range. If the value is more than MAX, Alarm is automatically set
- **Email** – Send an e-mail when the sensor is in Alarm
- **SMS** – Send a text message (SMS) when the sensor is in Alarm
- **Del** – Remove the sensor from the list (e.g. when the sensor is disconnected). If the sensor remains physically connected, it will be detected again when the Ares unit is restarted. Sensor no. 65535 is a system entry and cannot be deleted.
- **Find Sensors** – Detect all connected sensors. By default, sensors are detected only when the unit is powered up. Sensors connected later must be discovered manually. Detected sensors are automatically added to the list.
- **Delete All** – Delete all discovered sensors. Sensor no. 65535 is a system entry and cannot be deleted.
- **Save** – Save all changes
- **Hyst** – Hysteresis for the given sensor
- **Templ.** – Alarm message template. (See the *SMS Templ.* and *Email Templ.* tabs.) The template is configured independently for each sensor.

Time tab

Use this tab to configure the current system time. The time can be set either manually in Time Setup, or automatically over the Internet.

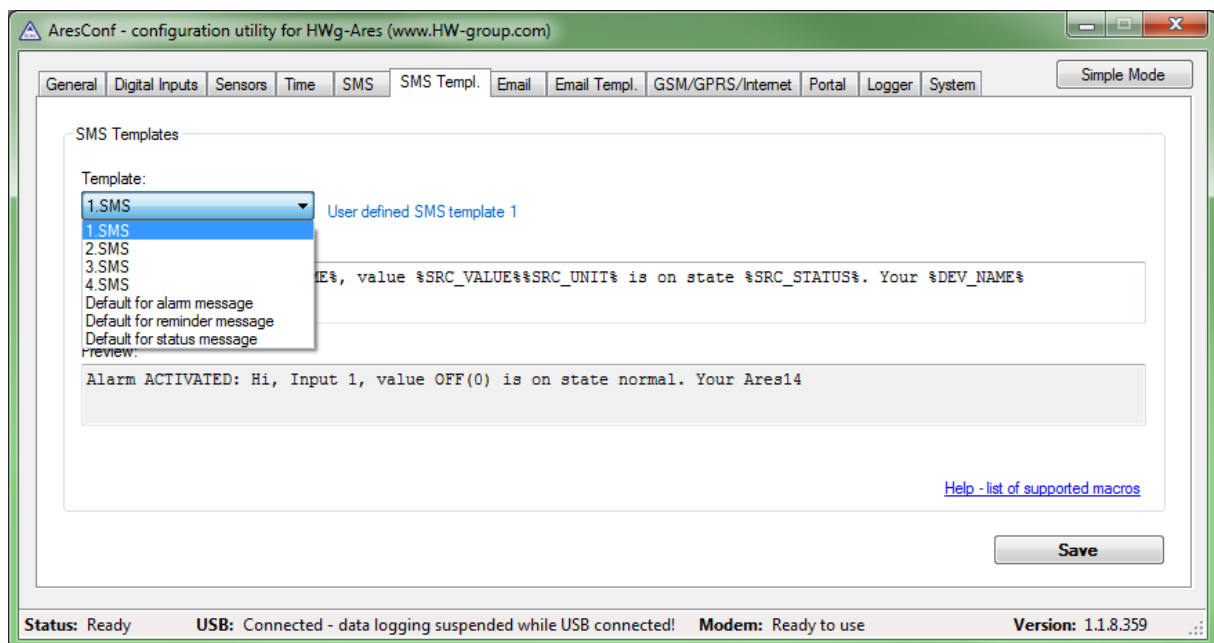
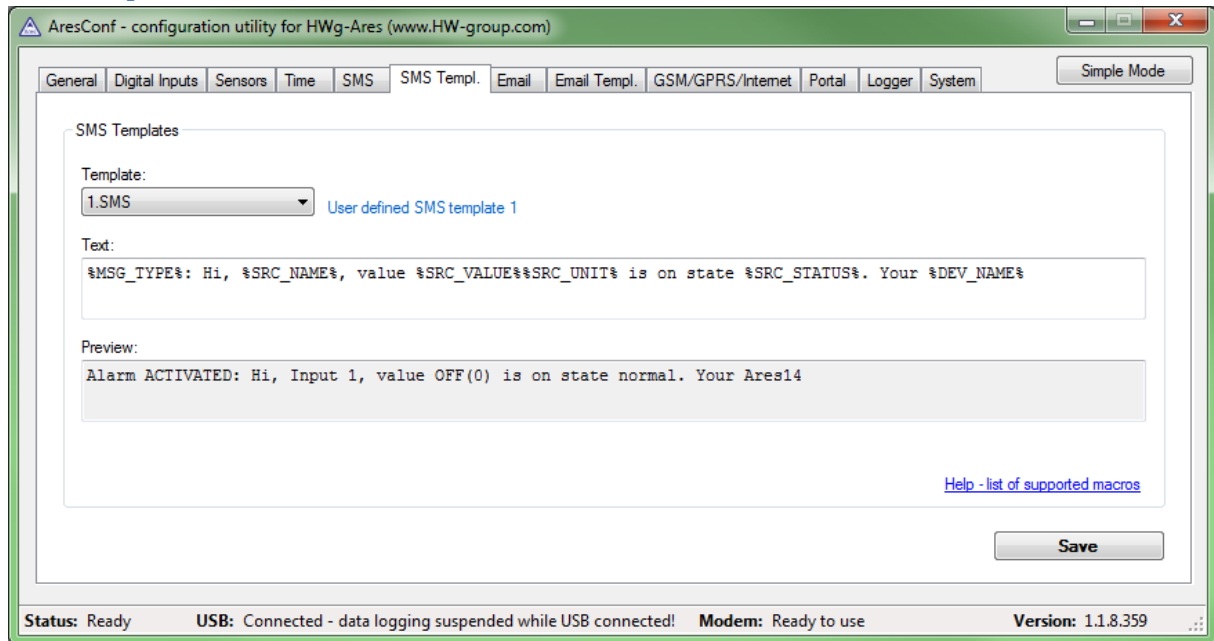
- **SNTP Server** – URL or IP address of the time server to use
 - List of stratum one time servers:
<https://support.ntp.org/bin/view/Servers/StratumOneTimeServers>
 - List of stratum two time servers:
<https://support.ntp.org/bin/view/Servers/StratumTwoTimeServers>
 - List of NIST time servers: <http://tf.nist.gov/tf-cgi/servers.cgi>
 - List of NTP pool servers: <https://support.ntp.org/bin/view/Servers/NTPPoolServers> and <http://www.pool.ntp.org>
- **Time Zone** – Time zone where Ares is used
- **Sync. Period** – Indicates how often to synchronize time over the Internet (1h/24h)
- **Daylight Saving Time** – Activates automatic change to/from DST
- **Sync. After Device Startup** – Synchronize time over the Internet whenever the device is powered on
- **New Day** – Shows the current date and lets the user change it manually
- **New Time** – Shows the current system time and lets the user change it manually
- **Synchronize Time** – Immediately synchronize time. *Only works when the GPRS connection is functional.*
- **Set Time Manually** – Store the changed date and time values to memory
- **Save** – Save all changes

SMS tab

Use this tab to configure alarm text message (SMS) recipients. Each recipient phone number is also authorized to request information from Ares 12 by dialing the unit's phone number and to send SMS commands without a password (see Advanced settings).

- **Recipient 1-5** – Phone numbers where to send alarm text messages (SMS)
 - **Ring-out** – Upon alarm, dial the given number. The phone rings for 15 seconds (rings three times), or until the call is refused.
- **Report End of Alarm** – Users will be also informed when an alarm ends (global setting)
- **Periodic Status:** Periodical sending statuses of sensors
 - **Period** – Period in minutes
 - **Template** – Template to use for Periodic Status
- **Alarm reminder** – Send reminders about active alarms
 - **Period** – Period of alarm reminders in minutes
 - **Template** – Template to use for the reminder message
- **Send Test SMS** – Send a test SMS to all configured numbers
- **Clean SMS Queue** – Clear all unsent text messages from the queue
- **Status SMS Settings** – Ares can send a text message with the current sensor states as a reply to an incoming “STATUS” message. If the phone number where the status request originated is not listed among the recipients, a password needs to be specified as well.
 - **Status SMS Password** – Password required to send the status message to a number not listed among alarm recipients.
 - **Show password** – Displays the password in a readable form
 - **Template** – Template to use for the status message
 - **Send Status SMS if ring from one of the Alarm recipients** – Status message is sent whenever any of the alarm recipients calls the device
- **Save** – Save all changes

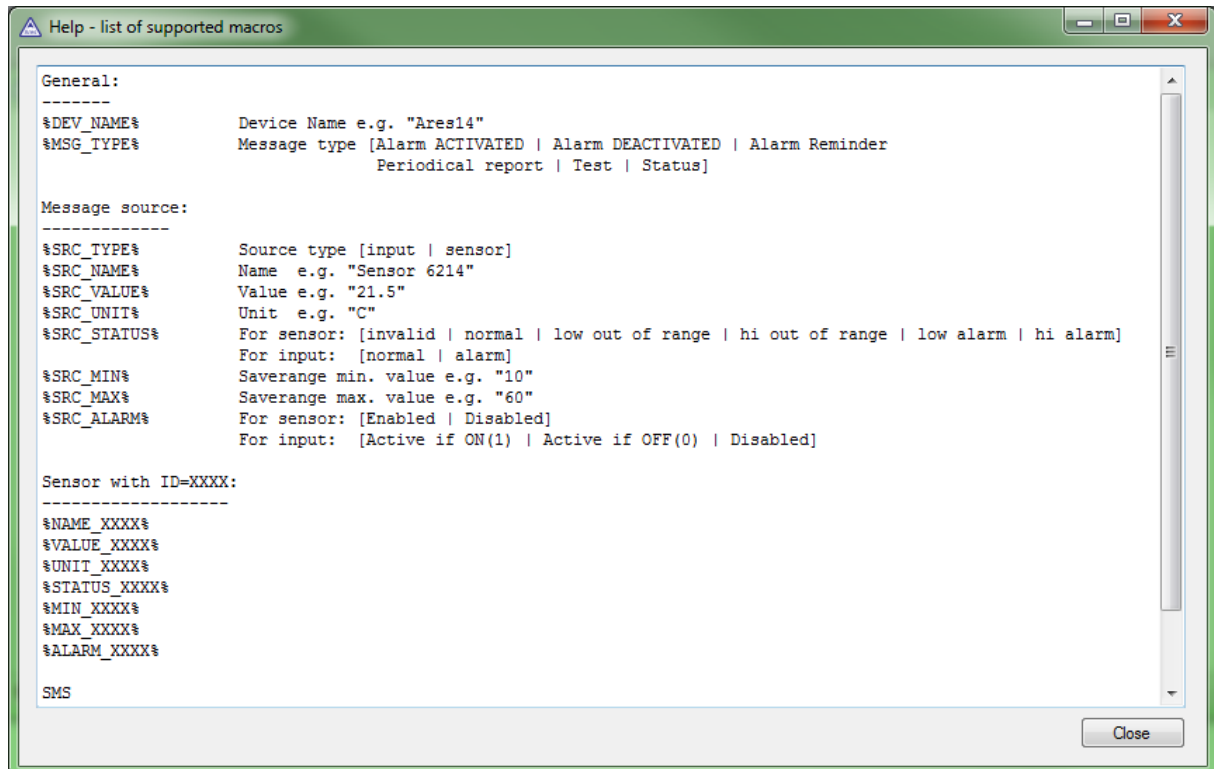
SMS Template tab



Use this tab to define the formats of individual messages, e.g. to distinguish temperature alarm messages from humidity alarm messages or to define the contents of status and reminder messages.

- **Template** – Selects the template to edit
- **Text** – Message contents, with macros as variables
- **Help – list of supported macros** – List of macros that can be used in the message
- **Preview** – Display a dialog with a preview of the message
- **Save** – Save all changes

Macros window



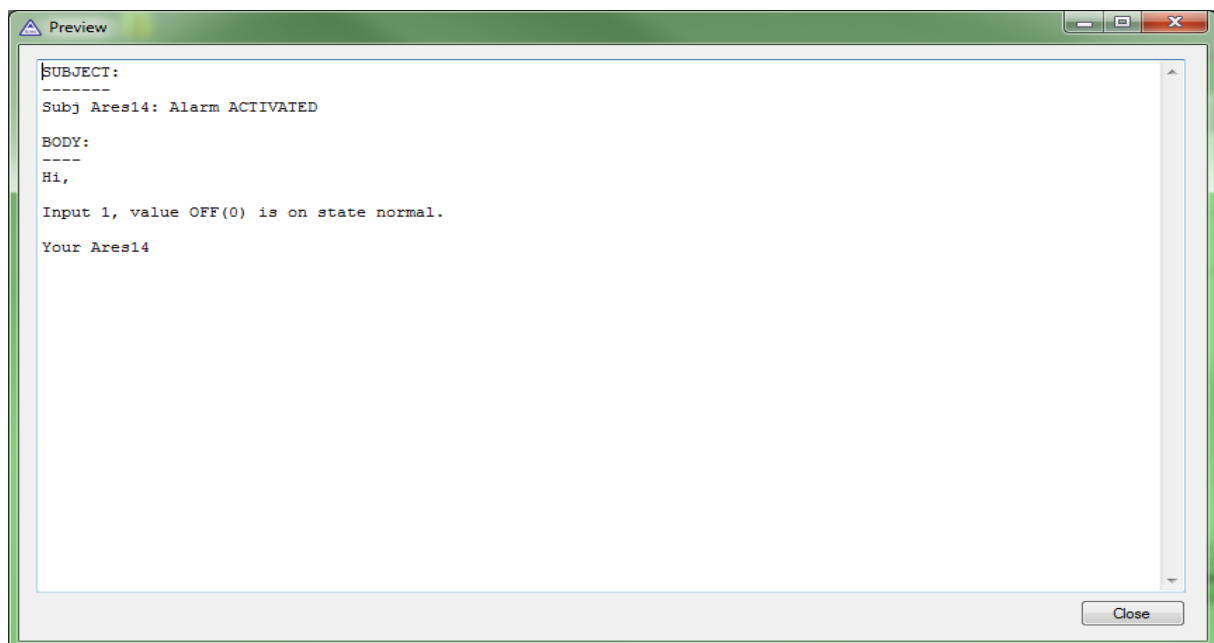
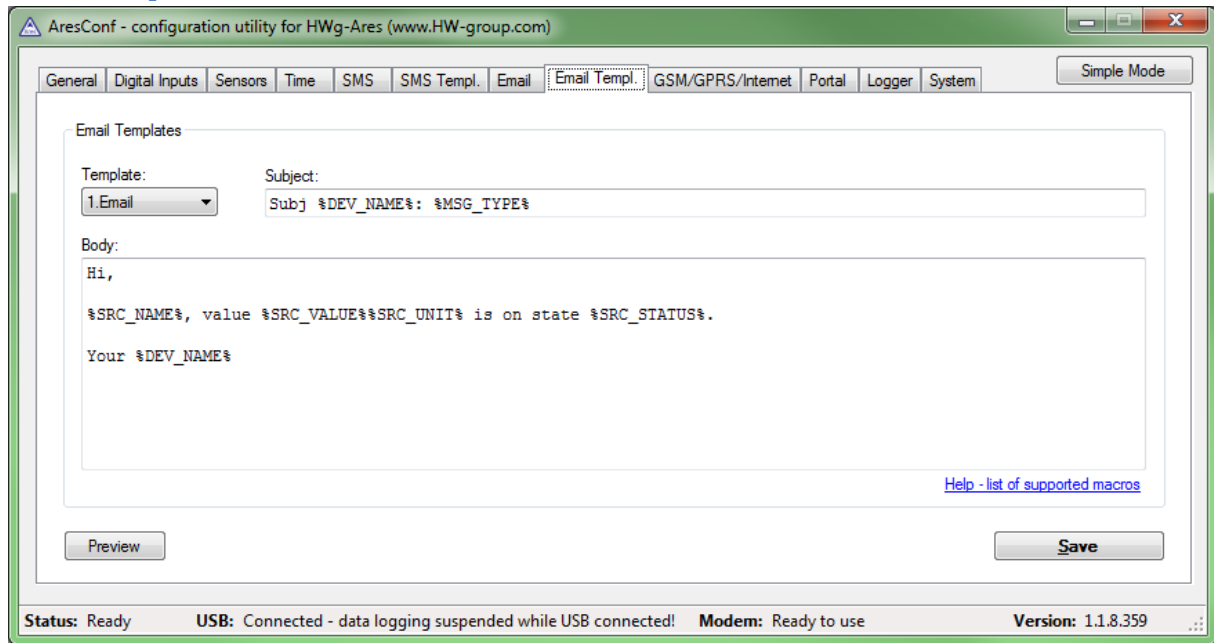
E-mail tab

Use this tab to configure alarm e-mail recipients and parameters.

- **Recipient 1-5** – Addresses of recipients for alarm e-mails
- **Importance** – Importance of the e-mail message. Useful for mail filtering in e-mail clients.
- **Report End of Alarm** – Users will be also informed when an alarm ends (global setting)
- **Periodic Status:** Periodical sending statuses of sensors
 - **Period** – Period in minutes
 - **Template** – Template to use for Periodic Status
- **Alarm reminder** – Send reminders about active alarms
 - **Period** – Period of alarm reminders in minutes
 - **Template** – Template to use for the reminder message
- **SMTP Server*** – IP address or host name of the SMTP server to use for sending e-mail
- **SMTP Port*** – TCP port where the SMTP server listens
- **Username*** – Username for authentication to the SMTP server
- **Password*** – Password for authentication to the SMTP server
- **Show Password** – Display the actual password instead of asterisks
- **Secure Connection (SSL)*:** No/STARTTLS – Enables encrypted authentication
- **Outgoing Email Address** – Sender e-mail address. E-mails will be sent to the recipients from this address.
- **Subject** – Subject prefix. Useful for adding a keyword to the e-mail subject in order to simplify mail filtering.
- **Send Test Email** – Send a test e-mail to all listed recipients
- **Clean Email Queue** – Clear all unsent e-mails from the queue
- **Save** – Save all changes

*Ask your network administrator or mobile carrier for this information.

Email Template tab



Use this tab to define the format of individual messages, e.g. to distinguish temperature alarm messages from humidity alarm messages or to define the contents of status and reminder messages.

- **Template** – Selects the template to edit
- **Subject** – Subject of the e-mail. Macros can be used.
- **Text** – Message contents, with macros as variables
- **Help – list of supported macros** – List of macros that can be used in the message. See the *SMS Template* tab.
- **Preview** – Displays a dialog with a preview of the message. See the *SMS Template* tab.
- **Save** – Save all changes

GSM/GRPS/Internet tab

Use this tab to configure the GSM and Internet connection details.

- **SIM Card PIN** – Specifies the security PIN code for the SIM. The SIM can remain protected with the PIN.
- **Show Password** – Display the entered PIN
- **Enable GPRS/Internet** – Enable Internet-based services, such as sending e-mail, portal services and time synchronization
- **GPRS Operator Settings** – Settings for accessing the GPRS network of the mobile carrier:
 - **APN Address** – Access Point Name identifier. The default is “internet”. Your mobile carrier can advise if another is needed.
 - **Dial Number** – Phone number for accessing the Internet. The default is *99***1#. Your mobile carrier can advise if another is needed.
- **Roaming** – Enable Internet connection outside of the home carrier network, e.g. when traveling abroad
- **Show Advanced GPRS Settings** – Display advanced settings that are accessible directly using AT commands (for experts only)
- **Username** – User name for the connection. Will be provided by the mobile carrier if needed.
- **Password** – Password for the connection. Will be provided by the mobile carrier if needed.
- **Dialup String** – AT string. Will be provided by the mobile carrier if needed.
- **Save** – Save all changes

Portal

AresConf - configuration utility for HWg-Ares (www.HW-group.com)

General Digital Inputs Sensors Time SMS SMS Templ. Email Email Templ. GSM/GPRS/Internet **Portal** Logger System Simple Mode

☐ Enable Portal

Portal Server Settings

Server Address:

Port:

Username:

Password:

Portal Message

Portal disabled

AutoPush Settings, Debug

Digital Inputs Sensors **Portal Debug** Debug Server

ID	Name	Value	AP Delta
23953	Sensor 23953	23.562 °C	0
65535	Battery Monitor	100 %	0

Manual Push Config to SensDesk Save

Status: Ready , USB: Connected - data logging suspended while USB connected! Modem: Ready to use Version: 1.1.8.359

Use this tab to configure the HWg-PUSH protocol.

- **Enable Portal** – Enable transmission of data to a remote portal (HWg-PDMS etc.)
- **Server Address** – HTTP address of the portal where the data should be sent
- **Port** – TCP port of the remote portal (default 80)
- **Username** – Username for authentication to the portal
- **Password** – Password for authentication to the portal
- **Manual Push** – Manual transmission for test purposes
- **Save** – Save all changes

- **Auto push settings, Debug**

- Digital inputs – Informations of digitals inputs (AP Enable = allowed to sending to the portal)

AutoPush Settings, Debug

Digital Inputs			
ID	Name	Value	AP Enable
1	Input 1	0	<input type="checkbox"/>
2	Input 2	0	<input type="checkbox"/>
8	External Power	1	<input type="checkbox"/>

- Sensors – Informations of connected sensors (AP Delta – Difference of value to extra sending to portal)

AutoPush Settings, Debug

Sensors			
ID	Name	Value	AP Delta
65535	Battery Monitor	45 %	0
23953	Sensor 23953	24,375 °C	0

- Portal Debug – Current setting of PUSH. Informations are provided by remote portal and HWg-Ares is only reproduces
 - **(Push Period** – Period of sending values to portal in seconds)
 - **Log Period** – Log Period – period of logging in seconds. All values will be sended to portal in one package according of setting Push Period. Memory is for 10 values.

AutoPush Settings, Debug

Portal Debug	
Push Period (0=disable):	10
Log Period (0=disable):	0
Push Timer:	-1159
Log Timer:	-1169
AP Block Timer:	0

- Debug server – setting of second portal for diagnostics

AutoPush Settings, Debug

Digital Inputs | Sensors | Portal Debug | **Debug Server**

Secondary Portal Server for diagnostic. Na tento server budou odeslana stejná data jako na hlavní server, ale všechny odpovědi, příkazy a konfigurační data budou na straně Aresu ignorovány.

Server Address:

Port:

Username:

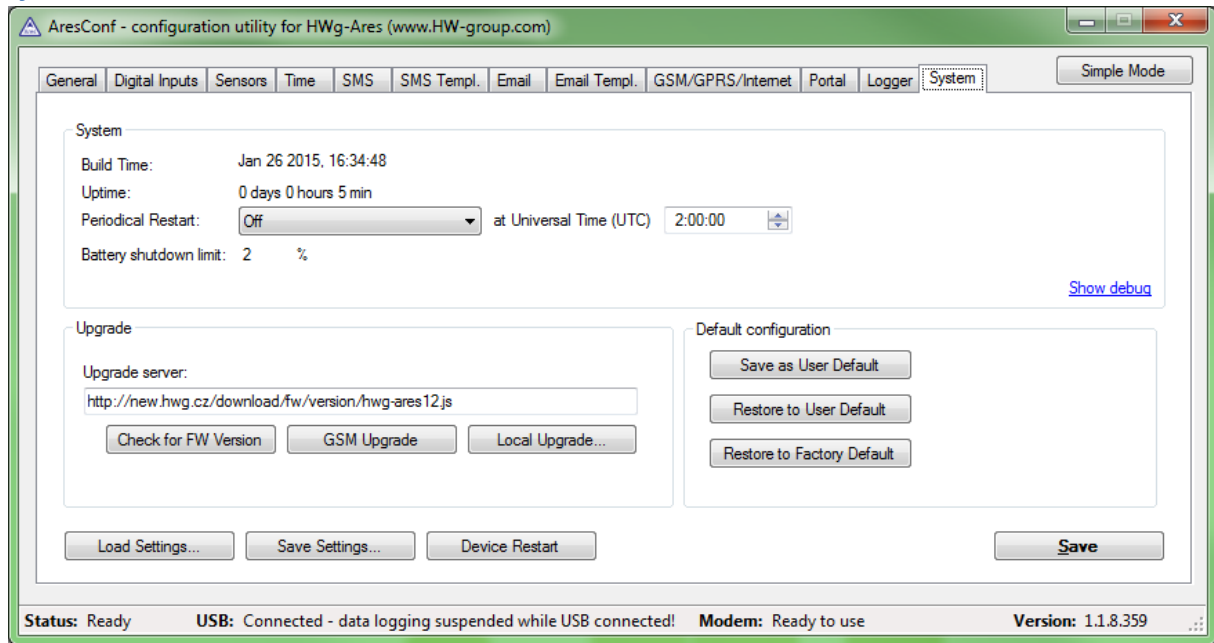
Password:

Logger

Use this tab to configure logging of measured values.

- **Actual Total Size** – Current size (volume) of recorded data in bytes
- **Log Period** – Interval for storing measured values
- **E-mail period** – Interval for e-mailing recorded values
- **Erase log after e-mail** – Delete recorded values after e-mailing them
- **Recipient 1-5** – Addresses of recipients for e-mails with logged data
- **Importance** – Importance of the e-mail message. Useful for mail filtering in e-mail clients.
- **Send Test Email** – Send a test e-mail to all listed recipients
- **Get CSV Log** – One-time transmission of recorded data to CSV file
- **Clear log** – Delete recorded data
- **Save** – Save all changes

System

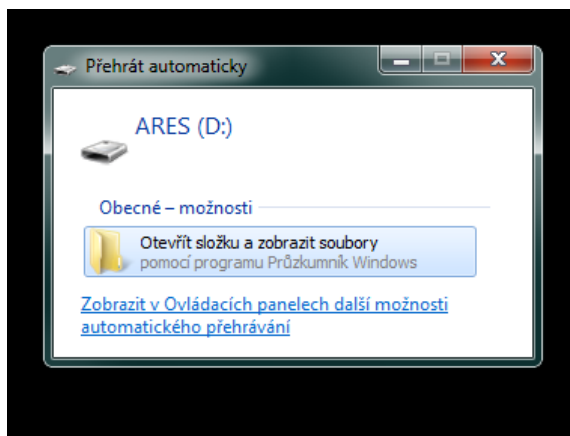


Use this tab to display and set system variables, upgrade firmware, and save or restore configuration.

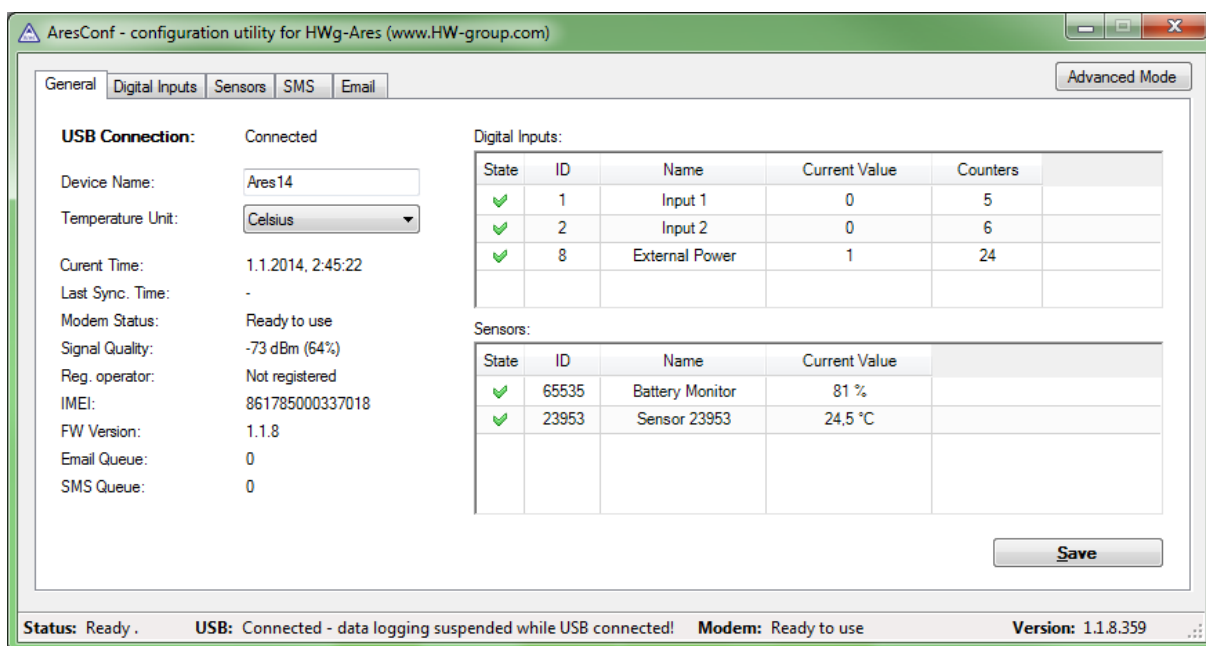
- **System**
 - **Build Time** – Date and time of the current firmware build
 - **Uptime** – Time since last restart
- **Periodical Restart** – Automatically restart the device:
 - **Daily** – Once per day
 - **Weekly (every Sunday)** – Once every Sunday
 - **Monthly (every 1st day of month)** – On the first day of every month
 - **at Universal Time (UTC)** – Time for the automatic restart (in UTC)
- **Upgrade**
 - **Upgrade server** – Firmware URL, or upgrade configuration file URL
 - **Check for fw version** – If the URL of the config file is specified, check for the availability of a firmware upgrade
 - **GSM Upgrade** – Upgrade the firmware over GSM/GPRS. Correct address needs to be specified in the Upgrade server field.
 - **Local Upgrade** – Upload firmware from the local computer through a standard dialog window
- **Default configuration**
 - **Save as User Default** – Save user defined configuration
 - **Restore to User Default** – Restore settings from user defined configuration
 - **Restore to Factory Default** – Restore factory default settings of the device
- **Load Settings** – Load a previously stored configuration from a setup.xml file
- **Save Settings** – Save the current configuration into a setup.xml file
- **Device reset** – Restart the device
- **Save** – Save all changes

Connecting to the Portal

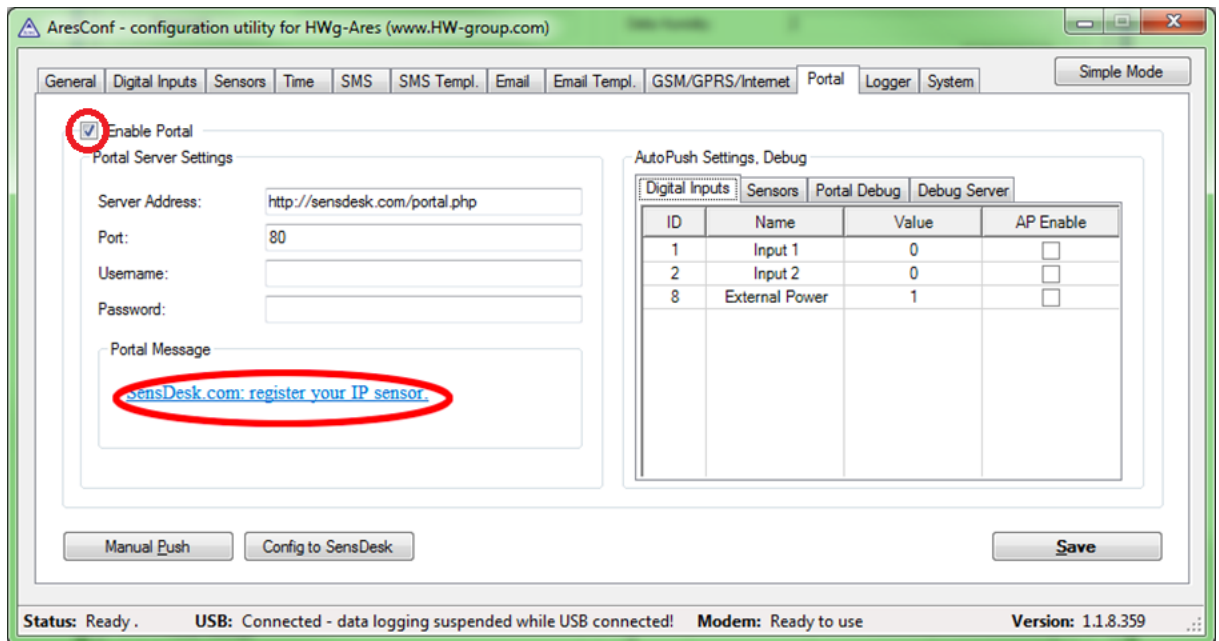
- 1) First power on the Ares and connect it with your computer via provided USB cable. Ares will appear on your PC as an external drive. In its main directory, open ARESCONF.exe.



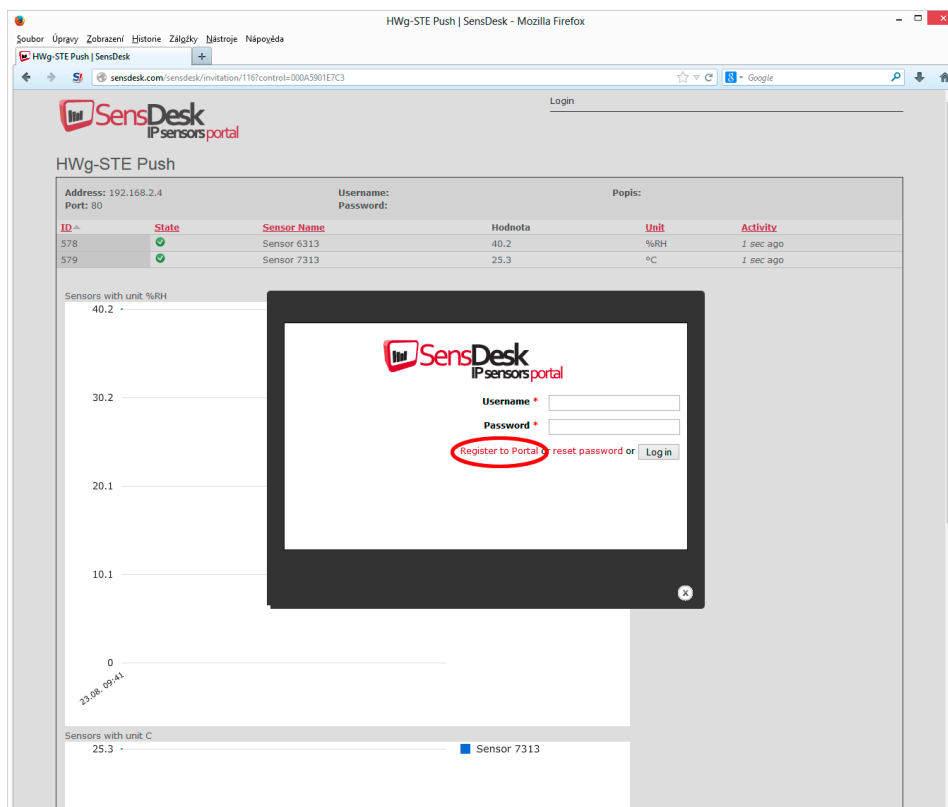
- 2) In AresConf, first switch to Advanced mode by clicking the button in the top right corner of the window, then go to *Portal* tab.



- 3) Tick the *Enable Portal* option and save the changes using the *Save* button in the bottom right corner of the window. Then click the *Manual Push* button in order to activate the portal function.



Instead of “Portal disabled”, a link *SensDesk.com: register your IP sensor* should appear in the *Portal Message* field. Click this link in order to get to the SensDesk portal.



- 4) In case you already have a user account, please enter your login details and the device will be automatically assigned to your account. If you do not have a SensDesk account yet, click the *Register to Portal* link and a registration form will be shown.

Uživatelský účet | SensDesk - Mozilla Firefox

sensdesk.com/cs/user/register

SensDesk
IP sensors portal

Username * attempt

E-mail address * [email]

Password * *****

Confirm password * *****

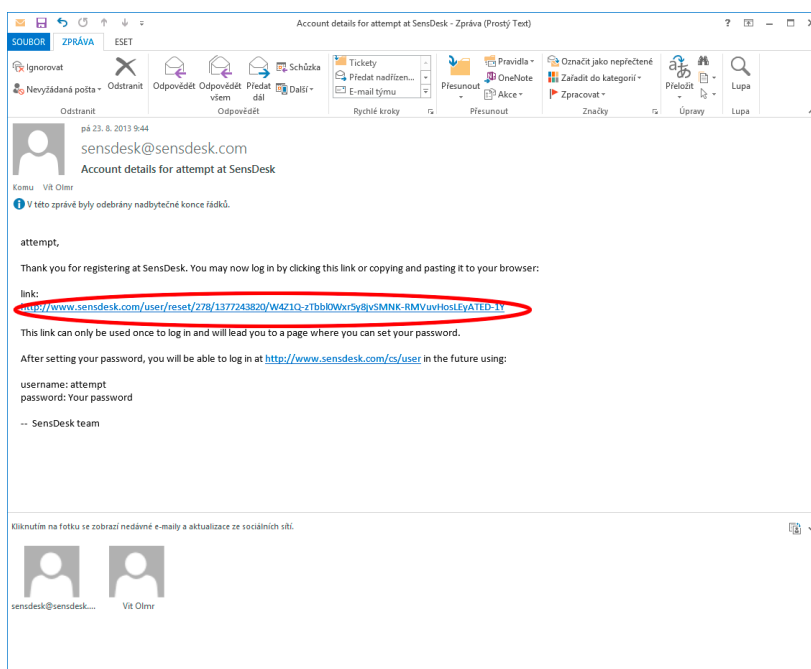
Company name * [red circle]

Name for your subdomain or leave blank to use username

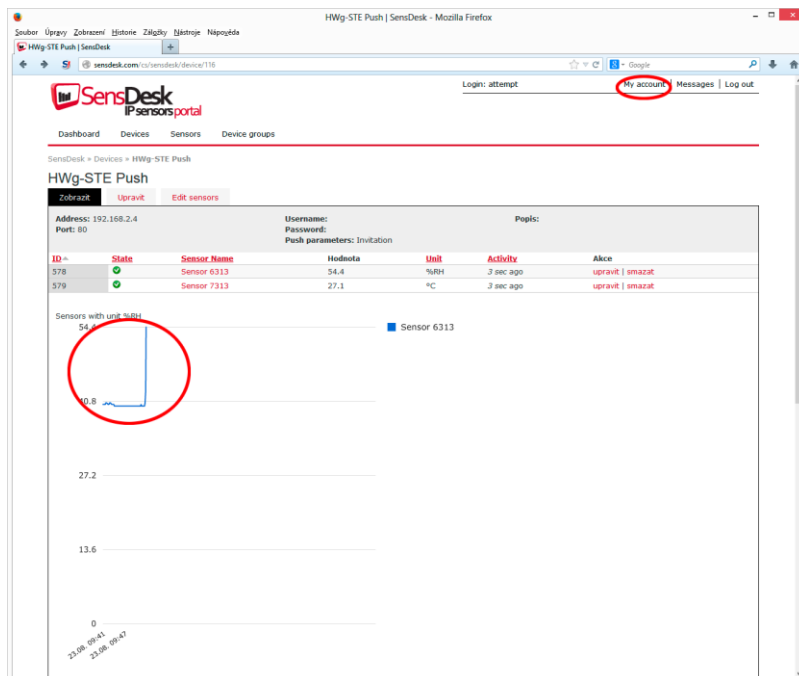
Country * Czech Republic

Log-in to Portal or reset password or Create new account

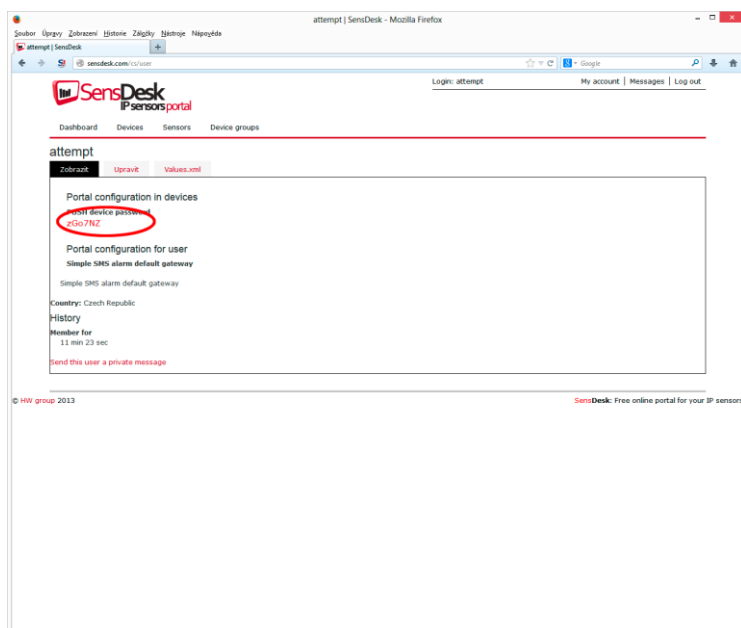
- 5) Enter the login details for your new account and a correct e-mail address. This e-mail address has to be unique for the server (cannot be already registered by another user). *Company name* allows you to create your own 3rd level domain (usually *company.sensdesk.com*). A user name will be used if the *Company name* field is left empty. After clicking the *Create new account* button, a user account will be created and at the same time a confirmation email is sent to the entered e-mail address. This e-mail contains a confirmation link, which has to be used in order to activate the account.



- 6) By activating the account, you will be redirected to the *Invitation page* of the device. At this moment, the data-sending period is set to 10 seconds to show the sensors functionality. This page is active only for approximately 15 minutes after the activation, then the logging period changes to 15 minutes.



- 7) If you check your user account configuration (*My Account* link), you will find your *Push Device Password*. This password, together with your login name, identifies the device in communication with your account and in communication of mobile applications with SensDesk. The password cannot be changed and for a security reason it is different to the login password.



- 8) PUSH Device Password can be used in devices to skip the logging procedure during assigning the device to your portal account, or in mobile applications:

AresConf - configuration utility for HWg-Ares (www.HW-group.com)

General Digital Inputs Sensors Time SMS SMS Templ. Email Email Templ. GSM/GPRS/Internet Portal Logger System Simple Mode

☒ Enable Portal

Portal Server Settings

Server Address:

Port:

Username:

Password:

Portal Message

[SensDesk.com: Check sensor online.](#)

AutoPush Settings, Debug

Digital Inputs Sensors Portal Debug Debug Server

ID	Name	Value	AP Delta
65535	Battery Monitor	93 %	0
23953	Sensor 23953	24 °C	0,1

Manual Push Config to SensDesk Save

Status: Ready. USB: Connected - data logging suspended while USB connected! Modem: Connected to Internet (70 sec) Version: 1.1.8.359

HWg-Sensors

ALL	ALARMS	Group: Doma
Vitek Doma	84	Cos Fi 1
Vitek Doma	38	Cos Fi 2
Vitek Doma	58	Cos Fi 3
Vitek Doma	0.7 A	Current
Vitek Doma	0.405 A	Current1
Vitek Doma	0.441 A	Current2
Vitek Doma	2.594 A	Current3
Vitek Doma	4448.557 kWh	Energy
Vitek Doma	23820.9 kWh	Energy
Vitek Doma	4136442 Wh	Energy
Vitek Doma	0	Input 1
Vitek Doma	0	Input 2
Vitek Doma	0	Input 3
Vitek Doma	0	Input 4
Vitek Doma	0	Input 5
Vitek Doma	0	Input 6
Vitek Doma	0	Input 7
Vitek Doma	0	Input 8

Reload Sensors Page

Portal function periodically sends the data to a remote server and the sending period is set by this server.

AutoPush is a function allowing unusual measured data sending, beside the periodical logging, in case that the value change is higher than the AutoPush delta parameter.

How to reduce operating costs

HWg-Ares units offer functions for reducing overhead GSM/GPRS costs, particularly in the following scenarios:

- Networks that limit the maximum volume of transferred data
- Subscribers without a flat-rate data plan

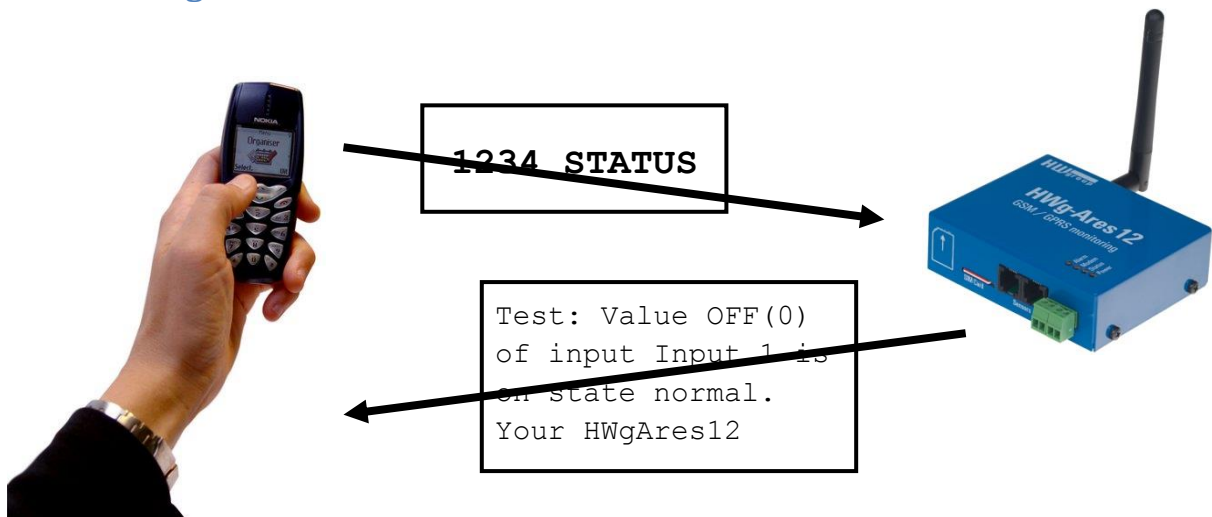
Primary cost-saving options

- Disabling GPRS/Internet functions
- Disabling data services when roaming outside of the home network
- Terminating GPRS connection when idle for longer than 60 seconds

Special functions

Alarm information after power up – When any sensor or digital input is in alarm when the power is connected, all alarm messages according to Ares configuration are sent as soon as the GSM/GPRS connection is established.

Text message commands



1234 is the default password. You have to use it if your number is not listed as one of 5 SMS recipients.

In case you are not using the default password, it has to be only one-word password - cannot contain any breaks.

- **STATUS** or **STATUS SMS** – Sends a text message with the current status
- **STATUS EMAIL** – Sends an e-mail with the current status
- **RESET** or **REBOOT** – Restarts the Ares unit
- **DEBUG** – Returns debugging information
- **UPGRADE** – Without further parameters, upgrades the firmware using the configured address. Full URL can be included in the message.

Troubleshooting

Modem does not respond

Check the information in the *Modem Status* field on the General tab:

- **SIM unplugged** – No SIM was found. Insert a SIM, or clean its contact pads.
- **Modem initializing...** – Modem is being initialized. This information should not appear for more than 10 s. Otherwise, it indicates a modem fault. If this message persists, check the SIM, clean its contact pads if necessary, and press Reset to restart the unit.
- **Invalid PIN** – PIN code is not entered in the Ares unit, or it is incorrect. Input the correct PIN in Advanced Config Mode on the GSM/GPRS/Internet tab.
- **PUK requested** – PUK code is required (must be entered in a different kind of device). The SIM is blocked until the correct PUK is entered. Take the SIM out and unblock it in a mobile phone.
- **Dialing...** – Connection to the carrier is being dialed (necessary to establish GPRS connection). This information should not appear for more than 20 s. Otherwise, it indicates a modem fault. Check the Dial number in Advanced Config Mode on the GSM/GPRS/Internet tab. When in doubt, contact your mobile carrier.
- **Configuring Internet...** – Internet connection is being configured (reading IP parameters). Check the APN in Advanced Config Mode on the GSM/GPRS/Internet tab.

Connected sensor cannot be found

Make sure that the sensors are properly connected.

- Restart Ares.
- Press Find Sensors on the Sensors tab to detect the missing sensor.
- Press Delete All Sensors to remove all sensors, then press Find Sensors to find them again.

I am receiving too many alarm messages

Check the hysteresis setting. By default, hysteresis is set to 1 without regard to the measured quantity. However, in some cases, this hysteresis is too low.

Internal memory size

HWg-Ares is equipped with 2MB internal memory for storing measured values. The available recording time depends on the number of values being stored. One value takes up 12 bytes of memory.

Therefore, $2048\text{kB} \cdot 1024 = 2,097,152\text{B} / 12\text{B} =$ approximately 170,000 records (due to the internal memory organization, the actual number is slightly smaller).

Examples:

3 values

Stored once per 300 s

$170,000 / 3 = 56,666$ records = 4722 hours = 196 days

1 value

Stored once per 30 s

$170,000$ records = 85,000 minutes = 1416 hours = 54 days

2 values

Stored once per 180 s

$170,000 / 2 = 85,000$ records = 4250 hours = 177 days

1-Wire UNI sensors

1-Wire sensors are connected using RJ-12 jacks. 1-Wire UNI sensors are a special kind of 1-Wire sensors. They communicate using the same protocol over the same interface but also contain added circuitry for connecting special probes. For this reason, 1-Wire UNI sensors may require an additional power supply (Sens UDI 86).

When the 1-Wire UNI sensors do not explicitly require external power, a maximum of two 1-Wire UNI sensors can be connected to one Ares port. More sensors can only be connected through the 1-Wire HUB Power (active hub).

1-Wire UNI sensors strongly influence how long the internal Ares battery lasts. This needs to be taken into account when planning your system.

For more information about connecting 1-Wire UNI sensors, carefully read the user manual for the respective sensor.

Customizing user messages

Ares supports up to 4 user-defined custom types of e-mail and text messages. The following macro commands can be used to insert system variables, sensor names and measured values.

List of macro commands

Name	Description
General:	General macros
%DEV_NAME%	Device name
%MSG_TYPE%	Message type (Alarm, status, periodic)
Source sensor:	
%SRC_NAME%	Sensor name
%SRC_VALUE%	Current value
%SRC_UNIT%	Unit of the measured value
%SRC_STATUS%	Sensors: Invalid, Normal, Alarm, Out Of Range Digital inputs: Normal, Alarm
%SRC_MIN%	Lower limit of the Safe Range
%SRC_MAX%	Upper limit of the Safe Range
%SRC_ALARM%	Alarm begin/end
Sensor with ID=XXXX:	Information about other sensors to include in the message
%NAME_XXXX%	XXXX sensor name
%VALUE_XXXX%	XXXX sensor reading
%UNIT_XXXX%	XXXX sensor unit of measurement
%STATUS_XXXX%	Sensors: Invalid, Normal, Alarm, Out Of Range Digital inputs: Normal, Alarm
%MIN_XXXX%	Lower limit of the Safe Range XXXX
%MAX_XXXX%	Upper limit of the Safe Range XXXX
%ALARM_XXXX%	Alarm begin/end

Datalog format of devices HWg-PWR and HWg-Ares

The data is stored in a simple binary format:

<record1>< record2>< record3><record4><record5>...<recordN>

The record format is following:

- Sensor ID (2 bytes)
- TimeStamp (4 bytes)
- Value (4 bytes)

The TimeStamp is stored in Unix time format (time_t). More information about the format you can find for example here

http://en.wikipedia.org/wiki/Unix_time. The

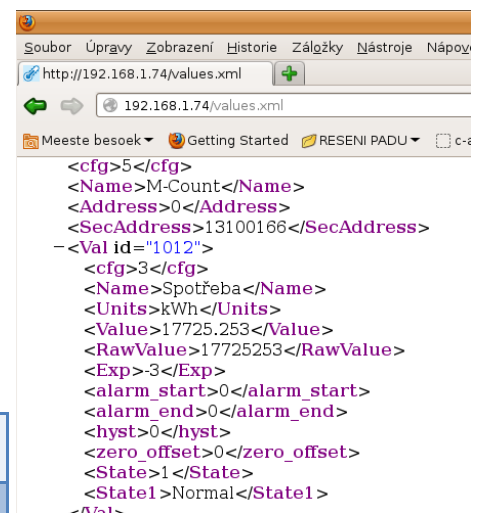
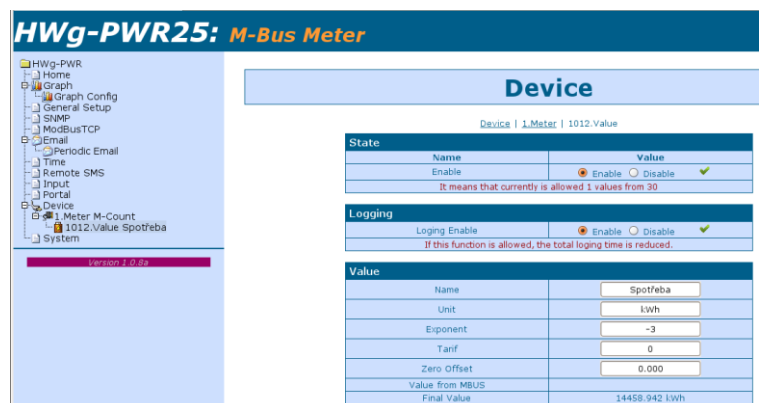
Value is stored without decimal point. An exponent tells you where you have to move decimal point to get real value

(mathematical expression: $\text{right_value} = \text{value} * 10^{\text{EXP}}$). On screen shot you can see an example of sensor with ID = 1012 and exponent -3.

The exponent you can get from values.xml too. On following screen shot there is the same information about the the same sensor you can see in values.xml file.

But there is a few little differences between these devices. Some of them store data in little endian format and others in big endian. More information about endianness you can see for example here <http://en.wikipedia.org/wiki/Endianness>. And some of them store timestamp in local and others in universal time.

	Endiannes	TimeStamp
HWg-PWR	big	devices's local time
HWg-PWR 25	little	devices's local time
HWg-Ares	little	universal time (UTC)



```

/* hwg_pwr_datalog.c
 *
 * Default is datalog written on standard output.
 * Command "hwg_pwr_datalog.exe > out.txt" writes the records into file.
 */

#include <stdio.h>
#include <time.h>
#include <winsock.h>

/* For device HWg-PWR 25 and HWg-Ares uncomment next line */
/* #define ARES */

#ifdef ARES
#define _HTONS_(VAL) ( VAL )
#define _HTONL_(VAL) ( VAL )
#else
#define _HTONS_(VAL) ( htons(VAL) )
#define _HTONL_(VAL) ( htonl(VAL) )
#endif

```

```
/* Special pragma for Borland C++ Builder - other compilers probably use a different way
 * how to say to compiler an information about structures packing
 */
#pragma pack(push)
#pragma pack(1)
typedef struct {
    unsigned __int16 val_id; /* Value ID */
    unsigned __int32 time;   /* Unix time format time_t */
    __int32 value;          /* Value = value * 10^EXP, where EXP is exponent */
} HWG_PWR_LOG_ENTRY;
#pragma pack(pop)

int main(int argc, char* argv[])
{
    FILE *InFile;
    HWG_PWR_LOG_ENTRY Entry;
    time_t t;

    InFile = fopen("datalog.bin", "rb");
    if (!InFile) {
        fprintf(stderr, "File 'datalog.bin' could not open!");
        return 1;
    }

    printf("-----\n");
    printf(" ID      | VALUE      | TIME\n");
    printf("-----\n");
    while (fread(&Entry, sizeof(HWG_PWR_LOG_ENTRY), 1, InFile)) {
        t = _HTONL(Entry.time);
        printf(" %5d | %10d | %s",
               _HTONS(Entry.val_id),
               _HTONL(Entry.value),
               asctime(gmtime(&t))
        );
    }
    printf("-----\n");
    printf(" ID      | VALUE      | TIME\n");
    printf("-----\n");

    fclose(InFile);

    return 0;
}
```


Mechanical

