

# AIO-GAS

## Gen-set controller for Gas application

### SW version 1.2.0

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# 1 General information

## 1.1 Version information

This document supplements the AIO-GAS 1.1.0 Global Guide

AIO-GAS is customer version of standard IS2GAS with customer specific functions.

Dongle IS-AFR-PCM and IS-AFR-LSM+PMS has to be used.

## 1.2 Clarification of notation

**Note:** *This type of paragraph calls readers attention to a notice or related theme.*

**IMPORTANT:** This type of paragraph highlights a procedure, adjustment etc., which can cause a damage or improper function of the equipment if not performed correctly and may not be clear at first sight.

**Example:** This type of paragraph contains information that is used to illustrate how a specific function works.

## 2 Changes in the version 1.2.0

### 2.1 New features

- ▶ MIC communication loss detection
  - New Setpoint:
    - Name: *MICComLost*
    - Location: Engine Protect
    - Option: ENABLED/DISABLED
  - New logical binary output:
    - Name: MICCOMLOST
  - Detect reception of CAN frame:
    - ActualIgnitionTiming
  - If the frame mentioned above is received each 2 seconds:
    - LBO "MICCOMLOST" = 0
    - Warning Alarm *MICComLost* is deactivated
  - If none frame is received within 2 seconds:
    - Warning alarm "*MICComLost*" is announced
    - History log "*MICComLost*" is created
    - LBO "MICCOMLOST" is set to 1
- ▶ VariStep communication loss detection
  - New Setpoint:
    - Name: *VariStpComLost*
    - Location: Engine Protect
    - Option: ENABLED/DISABLED
  - New logical binary output:
    - Name: VARISTPCOMLOST
  - Detect reception of CAN frame:
    - CurrentPosition in % 0
  - If the frame mentioned above is received each 2 seconds:
    - LBO "VARISTPCOMLOST" = 0
    - Warning Alarm *VariStpComLost* is deactivated
  - If none frame is received within 2 seconds:
    - Warning alarm "*VariStpComLost*" is announced
    - History log "*VariStpComLost*" is created
    - LBO "VARISTPCOMLOST" is set to 1

- ▶ Default archive setting:
  - Comms settings - Controller name = AIO-GAS
  - Basic settings - DispBlkStrtOff = DISABLED
  - LBI: User mask 1 - LBO Synchronising
  - LBI: User mask 2 - LBO GCB close/open
- ▶ Allowed communication with Modbus ECU
  - In sw version 1.3.0 there is implemented support of Modbus ECU.
- ▶ Increased internal buffer for CAN1 communication and changed the feature of history log recording for CAN1 buffer
  - history log is only for internal use in case of very special troubleshooting needs
  - in IntelliMonitor could be this log hidden
    - Setting-History - "Hide system records"
- ▶ Included AIO-GAS context help
- ▶ New conditions of Setpoints related to *MinPowerPTM*
  - Following Setpoints have his lowest value of the range limited by value of *MinPowerPTM*
    - *Derating 1 pwr*
    - *Derating 2 pwr*
    - *PwrReduction1A*
    - *PwrReduction1B*
    - *PwrReduction1C*
    - *KnockingReduct*
  - upper value of the range for *MinPowerPTM* itself is limited by *Derating 1 pwr*
  - if the *Derating 2 pwr* Value will be under the *MinPowerPTM*, then the Slow stop alarm "*DeratePwrErr*" is issued.
 

**Example:** *MinPowerPTM* = 5%, *Derating 1 pwr* = 50%, *Derating 2 pwr* = 40%. In case I will try to increase the *MinPowerPTM* above 50%, this will not be possible because of blocking from *Derating 1 pwr*. Increasing of *MinPowerPTM* above 40% is possible, but then *Stp DeratePwrErr* is issued.
  - AFR regulation is changed
    - the regulation loop is changed in sense of the sign of the *AFRvalve gain*
    - When the Requested AFR value is lower than Actual AFR value, then the output: Mixer position is decreasing, when the AFR gain is positive.

## 2.2 Repairs

- ▶ Fixed force value for parameter Sync/Load ctrl: Speed gov bias
- ▶ Fixed force value for parameter Sync/Load ctrl: Load gain
  - regulation is now frozen when is the parameter forced to 0
  - the same is also for:
    - Freq gain
    - Angle gain
    - Volt gain
    - PF gain
- ▶ Unwanted power limitation
  - When at least one of capability curve (CapabilityQ L or CapabilityQ C) in User sensor was missing, requested power was limited by parameter.Nominal power which has been set in the controller in the moment when the controller goes through a Reset (e.g. after programming is finished, or after power is switched On).
- ▶ MainsProtState pulse filtering
  - During releasing of LBO: MainsProtState the unwanted pulse was accidentally generated
- ▶ Derated value under MinPowerPTM causes overload of the engine.
  - when the parameter was under bellow the Setpoints MinPowerPTM the Active power may show bigger value then Nominal power.
  - bug is fixed with new feature described above
- ▶ SD alarm flashing in some cases when communication with either Logger or MIC or VariStep is lost.
  - fixed by changing of frame period in ECU list Motortech 1.6.0

## 3 Changes in the version 1.1.0

### 3.1 New features

- ▶ Dongle
  - Same dongle is used as for firmware IS-NT-AFR
  - IGS-NT-AFR-PCM - for SPI, SPTM applications
  - IGS-NT-AFR-LSM+PMC - for all applications
- ▶ Support of ECU list Motortech
  - ECU list Motortech 1.4.0 is supported in this version
- ▶ Support of new J1939 Protocol for MIC and VariStep
  - Fault reset function for MIC
  - New LBI: MICfltRes
- ▶ Setpoint Min Power PtM is now every time calculated only from Nominal Power
  - Derating power or any other power reduction function has no influence on the Value given by Setpoint Min Power PtM
- ▶ ID-Mobile-Logger CAN communication loss detection
  - New Setpoint:
    - Name: LoggerComLost
    - Location: Engine Protect
    - Option: ENABLED/DISABLED
  - New logical binary output:
    - Name: LoggerComLost
  - Detect reception of CAN frames:
    - Oil Pressure A
    - Boost Pressure
  - If at least one of the 2 frames mentioned above is received each 2 seconds:
    - LBO "LoggerComLoss" = 0
    - Warning Alarm LoggerComLost is deactivated
  - If none of the 2 frames is received within 2 seconds:
    - Warning alarm "LoggerComLost" is announced
    - History log "LoggerComLost" is created
    - LBO "LoggerComLost" is set to 1

► DxLoad function modification

- New Setpoint:
  - Name: KnockingReduct
  - Range: MinPwrPtm...100%
  - Dimension: %
  - Resolution: 1
  - Force value: YES
  - Location: AFR Control
- New Setpoint
  - Name: KnockProtType
  - Option: Shutdown/Slow stop
  - Force value: NO
  - Position: AFR Control
- In case the LBI: DxLoadReduct is active, the actual power is reduced to the value given by Setpoint: KnockingReduct and the countdown timer is active. Countdown timer is given by Setpoint: Knocking del. After the countdown timer is counted down is activated type of protection given by Setpoint: KnockProtType.

## 3.2 Repairs

- Baudrate of CAN2 communication by setting of Setpoint: CAN bus mode - 8C
- Baudrate was not 50kbit/s which caused that AIO-GAS was not compatible with other controllers (IGS-NT serie)

## 4 Related information

### 4.1 Available files

<b>Firmware (*.mhx)</b>
<b>For AIO-GAS</b>
AIOGAS-1.2.0.mhx

Table 4.1 Available firmware

<b>Archives (*.ant)</b>
<b>For AIO-GAS</b>
AIOGAS-Combi-1.2.0.
AIOGAS-COX-1.2.0.
AIOGAS-MINT-1.2.0.
AIOGAS-MINT-Marine-1.2.0.
AIOGAS-SPI-1.2.0.
AIOGAS-SPTM-1.2.0.

Table 4.2 Available archives

### 4.2 Overview of all available hardware

	<b>AIO-GAS</b>
<b>Binary Inputs</b>	16
<b>Binary Outputs</b>	16
<b>Analog Inputs</b>	4
<b>Analog Outputs</b>	1
<b>Communications</b>	RS232, RS485, USB, Ethernet

Table 4.3 Available hardware



## 4.3 Available related documentation

Documents	Description
IS2GASXX-1.2.0-Global Guide.pdf	Comprehensive guide containing parts for application, installation, operation, function description of IS2GASXX controller.
IGS-NT Communication guide.pdf	Thorough description of connectivity and communication for IGS-NT controllers
IGS-NT Troubleshooting guide.pdf	How to solve most common trouble with IGS-NT controllers
GenConfig 3.8.0 New features.pdf	Description of main changes in configuration PC tool.
InteliMonitor 3.8.0 New features.pdf	Description of changes in monitoring PC tool.
ECU list GEMS 1.4.0 New features.pdf	Description of changes in ECU list for IS2GASXX.
InteliVision5-1.8.0 New features list.pdf	Description of changes in remote display IV5.
InteliVision8-2.5.0 New features list.pdf	Description of changes in remote display IV8.
InteliVision12Touch-1.2.0 New features list.pdf	Description of changes in remote display IV12T.

Table 4.4 Available documentation

## 5 Notes

### 5.1 IB-NT connection

In case to monitor the IS2GAS controller via IB-NT, the IB-NT must have Firmware version 3.1.0 or higher, otherwise monitoring through web browser will not work.

### 5.2 GenConfig

For configuration has to be used GenConfig version 3.8.0 and higher.

### 5.3 HW Version

Because AIO-GAS is different HW Version than IS2GASXX so there can be difference in supported functions. Firmware AIO-GAS is not compatible with IS2GASXX HW and can be used only with HW AIO-GAS.

### 5.4 Document history

Revision number	Related sw. version	Date	Author
2	1.2.0	9.2.2017	Lubomír Brož
1	1.1.0	26.5.2017	Lubomír Brož