ComAp
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InteliLite 4

Controller for single gen-set applications

SW version 1.5.1

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New Features List

1 General information

1.1 Version information

Minor version with repair of incorrect indication of gen healthy state.

1.2 Clarification of Notation

Note: *This type of paragraph calls the reader's 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.**

> **WARNING: 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 1.5.1

2.1 Repairs

- Incorrect indication of gen healthy state
  - Gen healthy state (green generator LED) was incorrectly active when CT location was adjusted to Load option and MCB was closed

3 Changes in the version 1.5.0

3.1 New features

- PLC extension for AMF25 and MRS16 models
  - 2x PLC block (AxB/C)±D added

4 Changes in the version 1.4.0

4.1 New features

- LBI EXTERNAL MAINS FAIL was added

External Mains Fail Relay

Description
Binary input for external mains fail indication. When the LBI: EXTERNAL MAINS FAIL RELAY is active: - Controller accepts that MCB was opened by an external mains fail relay, it means that it does not try to close MCB - It behaves like in case of a standard mains failure, which is evaluated from the mains voltages measurement (the front panel mains icon is red, LBO: AL MAINS FAIL is active, Gen-set is started when controller is in the AUTO mode etc.) - Controller displays alarm *ALI External Mains Fail* When the LBI: EXTERNAL MAINS FAIL RELAY is deactivated: - Controller automatically closes MCB, if it is in the OFF/AUTO mode and mains is healthy - It behaves like in case of a standard mains return (if healthy mains voltage is detected) - Alarm *ALI External Mains Fail* automatically disappears ***Note:*** *This input can by used for Mains fail simulation*

- Setpoint *Phase Rotation Protection* was added

Phase Rotation Protection

Setpoint group	Protections	**Alternative config**	NO
Range [units]	Enabled/Disabled/ExtDisable [-]		
Default value	Enabled	**Step**	[-]
Description			
This setpoint adjusts the behavior of generator Phase Rotation protection. Enabled: — Protection is enabled. Behavior of protection is adjusted via setpoint *Phase Rotation*. Disabled: — Protection is disabled. ExtDisable: — Protection is enabled or disabled by the state of LBI PROTECTION FORCE DISABLE			

- LBO HISTORY RECORD INDICATION PULSE was added

History Record Indication

Description
This LBO triggers 1s pulse when new history record is created in history log. ***Note:*** *When more history records are created at the same time, only one 1s pulse is created.*

- LBI EMERGENCY MANUAL is available also for AMF8 and AMF9 models
- Screen filter modification
  - Time base of filter was extended to reduce displayed values fluctuation
- MRS archives for AMF8 and AMF9 were created
  - InteliLite AMF8-MRS archive
  - InteliLite AMF9-MRS archive
- Setpoint *Manual ECU Activation Timeout* was added

Manual ECU Activation Timeout

Setpoint group	Engine settings	**Alternative config**	NO
Range [units]	0 .. 300 [min]		
Default value	60 min	**Step**	1 min
Description			
The setpoint allows user to set length of ECU manual activation in OFF mode. LBO ECU POWER RELAY is activated by Start button. This LBO is active until Stop button is pressed, or until timeout elapses or until mode is changed.			

- LBI FORCE IDLE was added

Force Idle

Description

This logical binary input can force engine to idle speed in MAN or AUTO mode.

> ***Note:*** *This binary input has no influence on engine cooling speed.*

> **IMPORTANT: GCB has to be open**

Activation of LBI:

Following procedure is executed:

- Alarm *AHI Manual Idle* is activated
- LBO IDLE/NOMINAL is switched to idle state and value *Requested RPM* goes to *Idle RPM* value
- Underfrequency protection and undervoltage protection are not evaluated
- Controller is in Manual Idle state until deactivation of this LBI

Deactivation of LBI

- Controller goes to MinStab state
- *AHI Manual Idle* is not present in alarm list
- LBO IDLE/NOMINAL is switched to nominal state and value *Requested RPM* goes to nominal value
- Controller goes to Running state

- Exercise Timers in AMF9 model
  - 6 timers available

- Control of 3-position switch was added
  - LBI NEUTRAL POSITION
  - LBOs NEUTRAL CLOSE/OPEN and NEUTRAL ON COIL

Neutral Position

Description
In MAN mode this input switches a three position ATS switch to its neutral position – it activates the binary outputs NEUTRAL CLOSE/OPEN and NEUTRAL ON COIL. MCB and GCB are switched to off.

Neutral Close/Open

Description
The output controls the neutral position of the three positions ATS switch. The ATS switch must react within 5 seconds to a close or open command, otherwise an alarm is issued.

Neutral ON Coil

Description
The output activates the neutral position coil of the three positions ATS switch. The pulse lasts for 5 seconds.

- Setpoint *Modbus Mode* added

Modbus Mode

Setpoint group	Communication Settings	**Alternative config**	NO
Range [units]	8N1 / 8N2 / 8E1 [-]		
Default value	8N1	**Step**	[-]
Description			
This setpoint adjusts communication mode of Modbus-RTU.			

Possible options

8N1	8 data bits, 1 stop bit, no parity
8N2	8 data bits, 2 stop bits, no parity
8E1	8 data bits, 1 stop bit, even parity

4.2 Repairs

- Setpoint *GCB control mode* - No Button
  - GCB is closed also in MAN mode automaticaly
- Current measurement after power on of Controller
  - Current is correctly measured when CU is power ON, Mains is OK and MCB is closed.
- Binary sensor for analog inputs shows correct data
- Switching of Alternate Configuration
  - it is possible to switch alternate configuration only in engine Ready state
  - issue when configuration was switch immediately when engine goes to stop phase was fixed

5 Changes in the version 1.3.4

5.1 Update

- Added support of 15 character long order code.

6 Changes in the version 1.3.3

6.1 Update

- Powe mesurement now available in lower power levels.
  - IL4 will now display power bellow 500 W. New lower limit is 100 W..

7 Changes in the version 1.3.2

7.1 Repairs

- USB host repairs and optimization.
- Modbus communication improvement.

8 Changes in the version 1.3.1

8.1 Repairs

- Long-term ECU communication stability fix

> **IMPORTANT: Due to long-term ECU communication stability fix we recommend to upgrade to version 1.3.1 during the regular Gen-set maintenance.**

9 Changes in the version 1.3.0

9.1 New features

- Multi ECU support.
  - We now support two ECU modules.
- New Dummy Load function.
  - This function is meant to prevent engine from running without load, which can in some cases shorten engine lifespan. It is a way user can set when to load external power bank and when to unload it.
  - Group of setpoints Load Shedding renamed to Load Management.
  - Added subgroup Load Shedding and Dummy Load.
  - Added new setpoints *Dummy Load Active (GenOnly / Disable), Dummy Load On Level, Dummy Load On Level Del, Dummy Load Off Level, Dummy Load Off Level Del* and LBOs DUMMY LOAD STAGE 1 - 2 for AMF8 and AMF9 and DUMMY LOAD STAGE 1 - 5 for AMF20, AMF25 and MRS16 applications.
- Controller history improvements.
  - Default columns order modified.
  - Configurable via InteliConfig.
  - History clearing button available in InteliConfig.
- New conditioned Running Hours Counters.
  - Values *Conditioned Running Hours 1,2* increments based on running engine and active LBI CONDITIONE RUNNING HOURS 1,2.
- Aftertreatment update.
  - *ATTFilterLamp* is renamed to ATTDPFLamp in LBI, LBO, history and alarm messages.
  - Non mission regeneration conditions changed: LBI GCB DISABLE = 1 condition is removed.
  - GCB closed condition is removed.
- Daylight saving time.
  - Setpoint *Sumer Time Mode* is replaced by new setpoints: *DST Switching Mode,DST Period Rule, Time Mode*.
- Analog input offset adjustment.
  - Moved to AIN configuration.
- Setting up of the Timers via HMI screens simplified.
  - Switch between the Timer setup screens is done by the button enter.
- HMI History Browsing.
  - When the first item is selected in history, pressing of the UP button leads to the last history item to be selected.
  - When the last item is selected in history, pressing of the DOWN button leads to the first history item to be selected.
- HMI Screens Update.
  - On Main Screen when value *Timer Value* is 00:00:00, it is hidden after 10s delay.
  - On Main Screen when value *Timer Text* is No Timer, it is hidden after 10s delay.
  - On Statistics Screen values, *Date, Time, Pulse Counter 1,2* are added.

- TOTAL EMERGENCY STOP.
  - Available as LBI, alarm and Fixed protection state.
  - LBI used in emergency is able to open not only GCB breaker but also MCB breaker.
- Text USB key changed to USB drive.
- LAI ENGINE SPEED.
  - This LAI selects the source of RPM.
- LBI START BLOCKING.
  - Start of the Gen-set is blocked if this binary input gets active before Start command is issued. While start is blocked, alarm *ALI Start Blocking* is active.
- LBI ECU KEY SWITCH.
  - Now available in models AMF8, AMF9 and AMF20 (previously only in AMF25 and MRS16).
- Pulse Counters range increased to 1 000 000.
- LBO GEN-SET ACTIVE.
  - The output is closed at the beginning of the Prestart Time period and opens when the Gen-set is fully stopped.
- Common LBOs for alarms.
  - LBOs Common Alarm Active Level 1,2 is active when there is an alarm level 1,2 unconfirmed or confirmed in the alarmlist.
  - LBOs Common Alarm Level 1,2 is active when there is an alarm level 1,2 uncomfimed present in the alarmlist.
- LBO INITIALIZED gets active after the controller is initialized.
- LBO PERIPHERAL MODULE COMM FAIL.
  - The LBO is active anytime when at least one module is in comm fail – regardless the protection is set upon the lost of any specific module.
- Modbus Remote Start/Stop.
  - Using register address 4700 in Modbus while in AUTO mode activates the function *Remote Start/Stop*.
- Setpoint *Earth Fault Sd* range increased to 200 A.
- Setpoint *Mains Voltage Detection* in MRS application.
  - Ability to turn on or off alarm *Mains Voltage Detected*.
- Setpoint *Transfer Delay* available in AMF8.
- Log-in record in controller history.
  - User is able to turn off writing the login message into history.
- Setpoints *CT Ratio Prim*, *CT Ratio Sec*.
- Setpoints *Mains Overvoltage Delay*, *Mains Undervoltage Delay*.
- Setpoints *Minimal* and *Maximal Stabilization Time* range increased to 3600.
- Setpoint *Dual Starter* has 3rd option: 111222.
- User setpoints can be located in selected setpoints groups and subgroups.
- Timer option Manual On.
  - When this option is selected, the LBO EXERCISE TIMER is turned on.

- Timer option for *Remote Start/Stop*.
- New format for HW version is supported.

  Example: 1.0.0.0
- Value *Total Fuel Consumption* added on CU screen when ECU is configured.
- User protection type: Alarm List Indication + History Record (AHI) added.
- PLC update.
  - Models IL4 AMF25, IL4 MRS16: Ana Switch +4.
  - Model IL4 AMF8: XOR/RS +1.
- Alarm *Sd Parallel Work*.
  - Alarm can be triggered in MAN Mode when GCB is closed and MCB feedback changes from open to closed.
- New LBIs SWITCH TO OFF, SWITCH TO MAN, SWITCH TO AUTO.
- New LBOs for buttons states.
  - LBOs START BUTTON STATE, STOP BUTTON STATE, FLTRES BUTTON STATE, HORN RES BUTTON STATE, MCB BUTTON STATE, GCB BUTTON STATE.
  - LBO is active as long as it's button is pressed or it's LBI is active.
- Autodetect Nominal Current.
  - When decimal power format selected, the value *Nominal Current* was 10x higher. *Nominal Current* is always no decimal value regardless the power format.
  - Calculation of value *Nominal Current* in Autodetect modified:
    - For *Connection Type*: SplPhL1L2 and SplPhL1L3 power factor 1 is used in the formula of calculation of value *Nominal Current*.
    - For the other types: High Leg Delta, 3Ph Low Y, 3Ph High Y, Mono Phase power factor 0.8 is used.

9.2 Repairs

- Uploading of configuration or FW via onboard RS485 accidentally failed.
- User Logout with index 127 on Modbus.
  - History record: User Logout was removed when onboard RS485 is used for Modbus.
- Setpoint *Starting Overspeed Protection*.
  - When setpoint *Starting Overspeed Sd* > setpoint *Overspeed Sd*, the threshold for protection was *Overspeed Sd* and not *Starting Overspeed Sd*.
- Missing vBreakerState and vEngineState in SNMP.
  - Breaker state and Engine state were missing in SNMP MIB table.
- Display contrast setting lost after power off.
- Contrast setting was fixed.

10 Changes in the version 1.2.2

10.1 Repairs

- Default value for setpoint *Transfer Delay* in IL4 AMF8 model
  - Default value was changed to 1s in AMF8 model

Note: *This setpoint is hidden in AMF8 model.*

11 Changes in the version 1.2.1

11.1 Repairs

- Repair of binary input function Mains Fail Block
  - Behavior of MCB come up to state of mains which can be affected by this LBI

12 Changes in the version 1.2.0

12.1 New features

- Increase the numbers of PLC blocks for AMF 25 and MRS 16:

PLC Block	Previous	Update
OR/AND	16	64
XOR/RS	8	16
Comp Hyst	4	8
Comp Time	2	8
Comp Win	0	8
Math Fc	0	4
Timer	2	2
Delay	8	32
Counter	2	4
Hold	0	2
Decomp	4	4

- New PLC blocks for AMF 25 and MRS 16:
  - Comp Win – The block output is switched on whenever the input analog value is in the range defined by Low and High levels.
  - Math Fc – The block performs basic mathematical operations of 2 to 8 analog operands based on selected function. Available functions are: Addition, Substraction, Absolute substraction, Average, Minimal value, Maximal value
  - Hold – The block is holding Input value based on value of Hold and selected mode (Edge, Level). The Output has resolution and dimension based on setting of the block.
- User Button 8-16 setpoints and LBOs User Button 8-16 added for AMF 25 and MRS 16.
- Timers 5-16 added for AMF 25 and MRS 16
- Fail Safe Binary State setpoint
  - The setpoint adjusts the behavior of binary inputs of extended module when the received value is not valid due to the communication error.
- For setpoint Running Hours Base the range is increased to 20000
- Added 12 more ECU analog inputs.
- Cloning available via InteliConfig
  - Cloning feature allows user to clone one controller or Plug-in modules configuration User Access Management included and firmware to another controller.

12.2 Repairs

- For MRS 16 setpoint *RS485 Mode* added option DualMaster
- For AMF 25 and MRS 16 Dual operation is working using on-board RS485 with any controller address

- Firmware upgrade over AirGate is possible from any older firmware version to any newer major firmware version.
- MCB control outputs (MCB CLOSE/OPEN, MCB ON COIL) do not activate for a short time after restart or switch on or programming when MCB Logic = Close Off and MCB Feedback is not configured.

13 Changes in the version 1.1.1

13.1 Repairs

- LCD backlight non-functional after return from power fail.
  - LCD backlight was never switched on when backlight timeout elapsed.
- Automatic logout of user via HMI.
  - User is automatically logout after 5 minutes when there is no user's action.
- USB Host firmware update not working from version 1.0.0 to 1.1.0.

14 Changes in the version 1.1.0

14.1 New features

- Non mission DPF regeneration
  - Several conditions which must be fulfilled have been added to start/stop DPF regeneration
- New LBIs GCB and MCB DISABLE
  -

GCB Disable

Related FW	1.5.1	**Related applications**	AMF, MRS
Comm object	62		
Description			
When this LBI is active, it is not possible to close GCB – LBO GCB Close/Open, GCB ON Coil cannot be activated by panel GCB close button, or close command or by auto command.			

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MCB Disable

Related FW	1.5.1	**Related applications**	AMF, MRS
Comm object	124		
Description			
When this LBI is active, it is not possible to close MCB – LBO MCB Close/Open, MCB ON Coil cannot be activated by panel MCB close button, or close command or by auto command.			

- New PLC block Decomposer
  - The block converts the analog input value to binary form and provides selected bits as binary outputs.
- New Setpoints
  - Telephone Number 5,6,7,8,9,10
    - for models AMF25 and MRS16
- New Aftertreatment LBIs
  - ECU YELLOW LAMP SOLID, ECU YELLOW LAMP BLINK, ECU YELLOW LAMP FAST BLINK
  - ECU RED LAMP SOLID, ECU RED LAMP BLINK, ECU RED LAMP FAST BLINK
  - ECU WAIT TO START SOLID, ECU WAIT TO START BLINK, ECU WAIT TO START FAST BLINK
  - ATT FILTER LAMP SOLID, ATT FILTER LAMP BLINK, ATT FILTER LAMP FAST BLINK
  - ATT HEST LAMP SOLID, ATT HEST LAMP BLINK, ATT HEST LAMP FAST BLINK
  - ATT SCR ERROR LAMP SOLID, ATT SCR ERROR LAMP BLINK, ATT SCR ERROR LAMP FAST BLINK
  - ATT DEF LEVEL LAMP SOLID, ATT DEF LEVEL LAMP BLINK, ATT DEF LEVEL LAMP FAST BLINK
  - ATT INHIBITED LAMP SOLID, ATT INHIBITED LAMP BLINK, ATT INHIBITED LAMP FAST BLINK

- Values renamed

Old name	New name	Old name	New name
Load kW	Load P	Load kVAr L1	Load Q L1
Load kVAr	Load Q	Load kVAr L2	Load Q L2
Load kVA	Load S	Load kVAr L3	Load Q L3
Load kW L1	Load P L1	Load kVA L1	Load S L1
Load kW L2	Load P L2	Load kVA L2	Load S L2
Load kW L3	Load P L3	Load kVA L3	Load S L3

14.2 Repairs

- In Chinese language Current HMI screen dashed line which represent nominal current is added.
- Wrn *Event/Alarm email/SMS 1-4 Fail* is shown when there is an error sending email or sms.
- In InteliConfig Controller Info section correct firmware version of offline archive is shown.
- For Volvo ECU module ECU Stop Pulse is send during frequency change procedure.
- In MRS application the GCB is not closed when controller is in Test Mode

15 Related information

15.1 Available files

Firmware (*.exe)
For InteliLite 4
InteliLite4-Install-Suite.exe

Table 15.1 Available firmware

Archives (*.ail4)				
For InteliLite AMF25	**For InteliLite AMF20**	**For InteliLite AMF8**	**For InteliLite AMF9**	**For InteliLite MRS16**
InteliLite4-AMF25-1.5.1	InteliLite4-AMF20-1.5.1	InteliLite4-AMF8-1.5.1	InteliLite4-AMF9-1.5.1	InteliLite4-MRS16-1.5.1

Table 15.2 Available archives

15.2 Available HW

	InteliLite 4 AMF25	InteliLite 4 AMF20	InteliLite 4 AMF8	InteliLite 4 AMF9	InteliLite 4 MRS16
Binary Inputs	8	6	6	8	8
Binary Outputs	8	6	6	8	8
Analog Inputs	4	3	3	3	4
Communications	USB, RS232-485, 4G, Ethernet	USB, RS232-485, 4G, Ethernet	USB, RS232-485, 4G, Ethernet	USB, RS232-485, 4G, Ethernet	USB, RS232-485, 4G, Ethernet

Table 15.3 Available hardware

15.3 Available related documentation

Documents	Description
InteliLite 4 AMF25 Global Guide	Global Guide of the controller InteliLite 4 AMF25 Global Guide
InteliLite 4 AMF20 Global Guide	Global Guide of the controller InteliLite 4 AMF20 Global Guide
InteliLite 4 AMF8 Global Guide	Global Guide of the controller InteliLite 4 AMF8 Global Guide

Documents	Description
InteliLite 4 AMF9 Global Guide	Global Guide of the controller InteliLite 4 AMF9 Global Guide
InteliLite 4 MRS16 Global Guide	Global Guide of the controller InteliLite 4 MRS16 Global Guide
InteliLite 4 Datasheet	Basic information about the controller InteliLite 4 Datasheet

16 Notes

16.1 Document history

Revision number	Related sw. version	Date	Author
12	1.5.1	1.3.2023	Michal Slavata
11	1.4.0	5.1.2023	Michal Slavata
10	1.3.4	14.11.2022	Cenek Pec
9	1.3.3	10.9.2022	Cenek Pec
8	1.3.2	26.7.2022	Cenek Pec
7	1.3.1	11.7.2022	Cenek Pec
6	1.3.0	30.4.2022	Jan Liptak
5	1.2.2	13.1.2022	Michal Slavata
4	1.2.1	23.12.2021	Michal Slavata
3	1.2.0	12.11.2021	Jan Liptak
2	1.1.1	9.7.2021	Jan Liptak
1	1.1.0	18.6.2021	Jan Liptak