1. Available firmware, archives and documentation

Firmware

Mhx file
IL-NT-AMF25-2.1.mhx
IL-NT-AMF20-2.1.mhx
IL-NT-MRS19-2.1.mhx
IL-NT-MRS16-2.1.mhx
IL-NT-MRS15-2.1.mhx
IL-NT-MRS11-2.1.mhx
IL-NT-MRS10-2.1.mhx
IL-NT-AMF9-2.1.mhx
IL-NT-AMF8-2.1.mhx
IL-NT-MRS4-2.1.mhx
IL-NT-MRS3-2.1.mhx

Archives

Archives
IL-NT-AMF25-2.1.ail
IL-NT-AMF20-2.1.ail
IL-NT-MRS19-2.1.ail
IL-NT-MRS16-2.1.ail
IL-NT-MRS15-2.1.ail
IL-NT-MRS11-2.1.ail
IL-NT-MRS10-2.1.ail
IL-NT-AMF9-2.1.ail
IL-NT-AMF8-2.1.ail
IL-NT-MRS4-2.1.ail
IL-NT-MRS3-2.1.ail

Documentation

PDF files	Description
IL-NT-AMF-2.1.pdf	Manual for InteliLite NT AMF gen set controller
IL-NT-MRS-2.1.pdf	Manual for InteliLite NT MRS gen set controller
IL-NT-MRS3,4-AMF8,9-2.1.pdf	Manual for InteliLite NT MRS3,4-AMF8,9 gen set controller
IL-NT-2.1 New Features.pdf	List of new features for software update

2. Main changes in IL-NT-2.1

New features

- **Range of "*Amps IDMT Del*" setpoint was extended**

Amps IDMT Del **[s]**
IDMT curve shape selection. *Amps IDMT Del* is Reaction time of IDMT protection for 200% overcurrent Igen = 2* *Nomin Current*.
Step: 0,1 s
Range: 0,1 - 600,0 s

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- **Fuel theft detection on still engine was modified**

  When the fuel theft protection is enabled (*MaxFuelDrop* setpoint is set to different value then 0) the controller automatically detect unexpected drop-off fuel. When the engine is running maximal allowed drop-off value is done by setpoint *MaxFuelDrop* and on still engine the maximal allowed drop-of value is preset to 5% of fuel tank volume capacity.

- **Earth fault current protection support was changed**

The support of extension module IL-NT EFCPM was removed. AMF25 and MRS 15,16 models now support only one module IC-NT CT-BIO7 for earth fault current protection.

- **The IL-NT-GPRS module behavior during network log-on was improved**

The SIM card network registration time delay and number of attempts was extended.

- **The support for sending of event emails when IB-Lite is connected was added**

Repairs

- **IL-NT-GPRS module support was modified**
  When the controller received multipart SMS or when the head of SMS contained text instead of proper number the controller behavior was not correct. SMS processing was modified.

- **History records modification**
  When the engine was running in the end of Crank Fail Pause the Sd Stop Fail alarm was displayed and performed but not recorded to the history.

- **IB-NT e-mail support**
  In case of RS232-485 communication module when IB-NT was connected to RS 485 interface the controller was not able to send an emails. This has been fixed.

- **ECU alarm WaitToStrt**
  When the ECU will stop to send alarm WaitToStrt the controller will remove it from the ECU alarm list automatically.

- **Voltage Autodetect in MRS19**
  The function for automatic connection type detection was fixed.

- **History reading for no RTC models**
  The controllers without RTC has history records based on running hours. In rare case there was possible to find absolutely identical records. In this case there was in LiteEdit visible only one of these identical records. The invisible column with unique number was added.

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3. Main changes in IL-NT-2.0.1

Repairs

- **MCB time control inaccuracy**
  When the controller has opened MCB but Mains became healthy earlier than the MCB feedback came the controller has performed "*Transfer Del*" instead of "*MCB CloseDel*" before another MCB close order. This behavior has been fixed.

4. Main changes in IL-NT-2.0

New features

- **Support for WebSupervisor**
  Controller supports WebSupervisor system. This system enables gen-set fleet and asset management as well as pure monitoring.
  For more details about WebSupervisor kindly visit web page of the product http://www.comap.cz/products/detail/WebSupervisor

- **Remote control window in WebSupervisor**

  It is possible to control a genset in WebSupervisor on a page with detail information about genset.

  Possible actions:

  - Change mode
  - Control breakers
  - Start / Stop Genset

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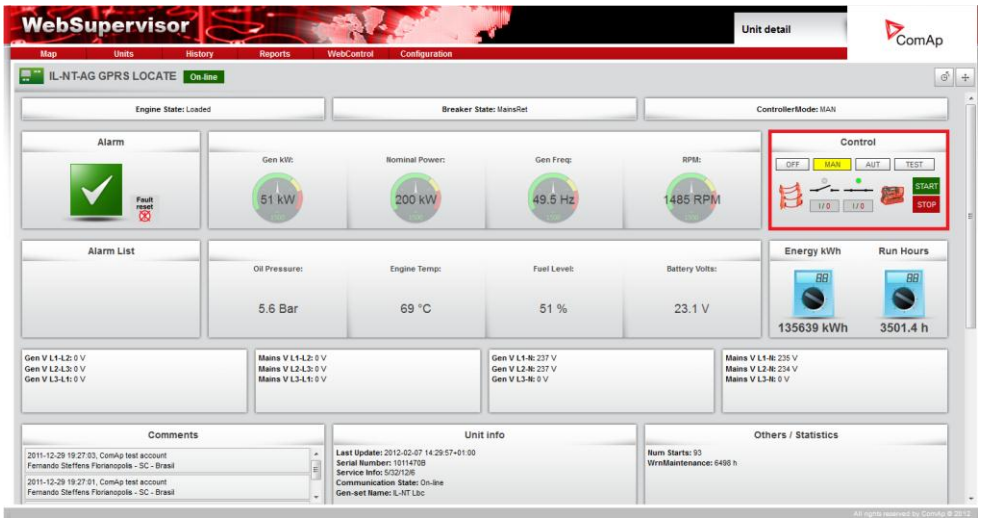

- **Support for AirGate**
  AirGate technology for easy plug'n'play wireless communication is incorporated. Common SIM card with GPRS service is suitable for this system. It overcomes problems with special SIM card (static and public IP) necessity, with firewalls and difficult communication settings.

  http://www.comap.cz/news-room/news-and-events/detail/AirGate

  http://www.comap.cz/news-room/news-and-events/detail/The-Rainbow-rises-for-remote-monitoring-applications/

- **Locate supported**
  This function allows to monitor actual gen-set position based on GSM signal information. The position is automatically updated and stored in WSV history. You can track the position of gen-set in WebSupervisor even in history.
  System works unlike GPS system also indoor or wherever is GSM signal. Precision of localization is not as precise as with GPS and depends on density of operator's GSM/BTS towers around gen-set.

  Hint:
  IL-NT-GPRS module and proper WebSupervisor configuration is required for this feature.

- **Support of GPRS communication through IL-NT-GPRS module**
  This plug-in module is GSM/GPRS modem which can work in two modes of operation based on settings in setpoint COM1 Mode.

  - Settings DIRECT = module works in GPRS network and enables connection via AirGate to LiteEdit and WebSupervisor as well as sending SMS alarms.
  - Settings MODEM = module works as standard GSM modem enabling CSD (Circuit Switch Data) connection to controller with LiteEdit or other ComAp PC SW and sending alarm SMSes.

  Hint:
  GPRS and CSD services have to be provided by your GSM/GPRS operator for successful operation.

  Hint:
  GPRS and CSD connection is not suitable for firmware update process, kindly use wired connection instead like RS232, USB, RS485 or Ethernet via IB-Lite!

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- New setpoint group “Comms settings” – this group contains all setpoints related to communications (only in MRS 10,11,15,16,19 and AMF 20,25 models).
    - List of all setpoints in this group:
        - **ControllerAddr** – controller address
        - **COM1 Mode** – Mode of communication on first COM port
        - **COM2 Mode** – Mode of communication on second COM port
        - **ModemIniString** – string of additional commands for modem initialization
        - **ModbusComSpeed** – modbus communication speed in bps
        - **IBLite IP Addr** – IP address of IB-Lite module
        - **IBLite NetMask** – IB-Lite network mask
        - **IBLite GateIP** – IP address of gateway for IB-Lite
        - **IBLite DHCP** – automatic IP address assignment through DHCP server
        - **ComAp Port** – Port for ComAp communication over IB-Lite or IL-NT-GPRS module

- Settings related to module in setpoint new group “Comms settings”:
    - **APN Name** – name of APN access point for GPRS network.
    - **APN UserName** – user name for APN access point.
    - **APN UserPass** – user password for APN access point.
      Hint:
      All 3 setpoints above shall be provided by GSM/GPRS operator.
    - **AirGate** – Communication mode of internet connection
      Hint:
      You should disable AirGate mode in case you would like to use standard internet connection using IP address.
    - **AirGate IP** – IP address of AirGate server (used in AirGate mode)
    - **SMTP UserName** – User name or name of e-mail account for verification of e-mail sender on SMTP server. If parameter left empty, no verification is expected. Works for IB-Lite only.
    - **SMTP UserPass** – User password of e-mail account for verification of e-mail sender on SMTP server. If parameter left empty, no verification is expected. Works for IB-Lite only.
    - **SMTP Server IP** – IP address of SMTP server. Works for IB-Lite only.
    - **Contr MailBox** – E-mail address used as “Sender” of alarm e-mails from IB-Lite
      Hint:
      If SMTP server requires verification of sender, e-mail address has to be registered to SMTP server and setpoints “SMTP UserName” and “SMTP UserPass” has to be setted to correct values.
    - **Time Zone** – List of time zones used for time reference.

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- **DNS IP Address** - IP address of Domain Name Server.

- **New GSM/GPRS screen on IL-NT display:**
  - New screen is displayed in case IL-NT-GPRS plug-in modem or other external modem is connected to IL-NT.

  - This screen displays information about:
    - GSM SignalLvl – IL-NT-GPRS module shows the strength of GSM signal. It is relative value helping to find the best signal and for troubleshooting cases. Standard external GSM modems usually support it as well.
    - GSM ErrorRate - IL-NT-GPRS module show this information for relative evaluation of signal quality. Lesser value means higher quality of signal.
    - Modem Status:
      1. "-----" – After controller initialization
      2. "Trying" – modem active, trying to establish connection
      3. "Ready" – modem ready, communication with modem is ok
    - GSM Diag Code – Diagnostic code for IL-NT-GPRS modem. Standard GSM Modems usually support this value as well. Helps in troubleshooting.
    - AirGate ID – Identification name generated by AirGate server for purpose of establishing communication via WebSupervisor/LiteEdit or InteliMonitor.

      It is communicated on first connection of IL-NT controller with IL-NT-GPRS module or IB-Lite to Airgate server. LiteEdit and InteliMonitor will need this information when opening connection via AirGate to this controller/gen-set. WebSupervisor will need this information when user will add this controller/gen-set.

    - AirGate Diag – Diagnostic Code for AirGate connection. Helps in troubleshooting.

Table of Diagnostic Codes:

Code	Description
0	OK. No error.
1	Not possible to hang up.
2	IL-NT-GPRS is switched off
3	IL-NT-GPRS is switched on
4	IL-NT-GPRS – error in initialization
5	IL-NT-GPRS – not possible to set the APN
6	IL-NT-GPRS – not possible to connect to GPRS network
7	IL-NT-GPRS – not possible to retrieve IP address
8	IL-NT-GPRS – not accepted DNS IP address
9	Error in modem detection
10	Error in initialization of analog modem
11	SIM card is locked (Possibly PIN code required, PIN needs to be deactivated) or unknown status of SIM locking
12	No GSM signal

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13	Not possible to read the SIM card parameters
14	GSM modem did not accepted particular initialization command, possibly caused by locked SIM card
15	Unknown modem
16	Bad answer to complement initialization string
17	Not possible to read GSM signal strength
18	CDMA modem not detected
19	No CDMA network
20	Unsuccessful registration to CDMA network
255	Only running communication is needed to indicate

Table of Diagnostic Codes:

Code	Description
1	Controller registered, waiting for authorization
2	Not possible to register, controller blacklisted
3	Not possible to register, server has no more capacity
4	Not possible to register, other reason
5	Controller registered and authorized

- **SMS commands**

Genset can be easily controlled by following SMS commands:

- start
- stop
- fault reset
- gcb close
- gcb open
- mcb close
- mcb open
- off
- man
- aut
- test
- status *.. system will send back full status report via SMS*
- help *.. system will send back help text with list of available commands*
- d+time[s] *.."d10" will cause 10s delay before next command*

SMS structure: "Access code" "," "command1" "," "command2"

Example:

When the controller with IL-NT GPRS module and access code 0 receive SMS

"0 man , start, d10, gcb close"

then the controller will change the mode to Manual, start engine and 10s later the controller will close GCB.

If the controller will receive the commands correctly it will send back

"#IL-NT: man<OK>, start<OK>,d_ok,man<OK> gcb close<OK>"

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Hint:
SMS system work with both small and CAPITAL letters and does not care about number of spaces between commands, if they are separated by comma ",".

- **Events SMS**

The controller is able to send event SMS according to the setting in SMS/Email setpoint group.

New setpoints in this group:

- **Event Msg [ON/OFF]** – enable/disable sending event SMS
- **SMS Language [1/2]** – select SMS language. "1" - primary controller language, "2" - secondary language inside the controller.

Following events can be received by mobile phone.

- Manual Start
- Manual Stop
- Remote Start
- Remote Stop
- AMF Start
- AMF Stop
- Mains Fail
- Mains Returned
- Load on Mains (when MCB is closed)
- Load on Genset (when GCB is closed)

Message structure for controller with RTC

Genset Name [10:15:24 06.04.2011]
10:15:15 Mains Fail
10:15:18 AMF Start
10:15:22 Mains Returned
10:15:23 Load on Mains
10:15:24 AMF Stop

Message structure for controller without RTC

Genset Name [5896:30]
5896:29 Mains Fail
5896:29 AMF Start
5896:30 Mains Returned
5896:30 Load on Mains
5896:30 AMF Stop

- **Added support for Chinese font in alarm and event SMS**

- **Total fuel consumption**

New statistic value *TotFuelConsum* was added. This value is invisible on the controller screen and can be read by LiteEdit or Websupervisor for purpose of asset monitoring.

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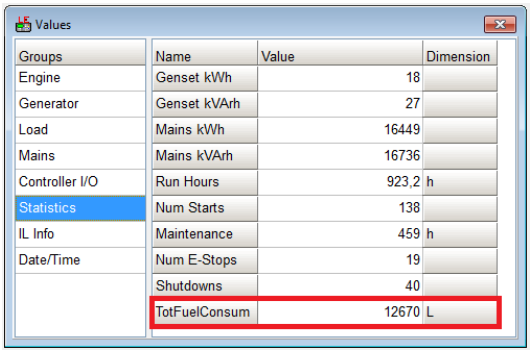


TotFuelConsum value contain total amount of consumed fuel by engine. Controller automatically updates this value every 30s.This value is incremented on basis of

i. direct value of total fuel consumption (ECU)
ii. actual fuel consumption value (ECU)
iii. fuel level drop in fuel tank

New setpoint *FuelTankVolume* in Engine Params was added.

- **Fuel Theft protection**

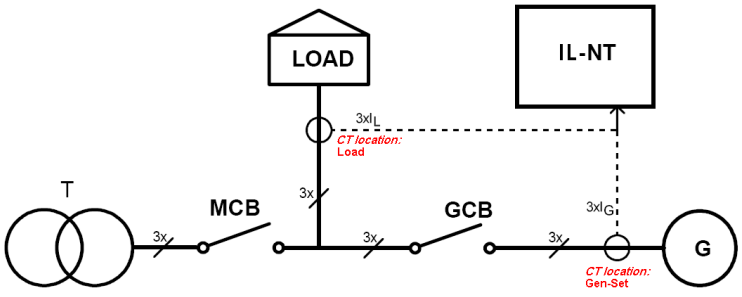
New protection against fuel theft or fuel leak is implemented. In case of detection of theft/leak the alarm "Wrn FuelTheft" is raised and same alarm is send via SMS and displayed by WebSupervisor (if used).
There is related new setpoint "Max Fuel Drop" [%/h] in Engine params defining the sensitivity of protection. Setpoint indicates the maximum allowable drop of fuel in fuel tank per running hour. Protection works also with still engine. Algorithm filters possible vibrations during start/stop of engine or during genset towing.

Function is disabled when MAX Fuel Drop is set to „0“.
Fuel level configured at AI3 is required.

- **Current measuring in load circuit**

New setpoint *CT Location* for AMF20 and AMF25 controllers is placed in group Basic Setting. According to the connection it is possible to set *CT location: Load* or *Gen-Set*. When CT Location is set to Load and MCB is closed the controller will display on Mains screen current value. The statistics now contain Mains kWh, Mains kVArh, Genset kWh, Genset kVArh.

Hint:
The protections related to the current measurement are active only when Genset is running.



- **Earth fault current protection**

External extension modules IC-NT CT-BIO7 and IL-NT EFCPM are supported in AMF25 and MRS 15,16 models.

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IC-NT CT-BIO7 - hybrid module with 1 current input and 7 configurable binary inputs/outputs
IL-NT EFCPM - module with 1 current input, 2 binary outputs and 1 binary input

When one of these modules is connected to the controller and configured in LiteEdit new setpoints group *EarthFaultProt* will be displayed and also new screen with Earth Fault current value will be displayed on the controller.

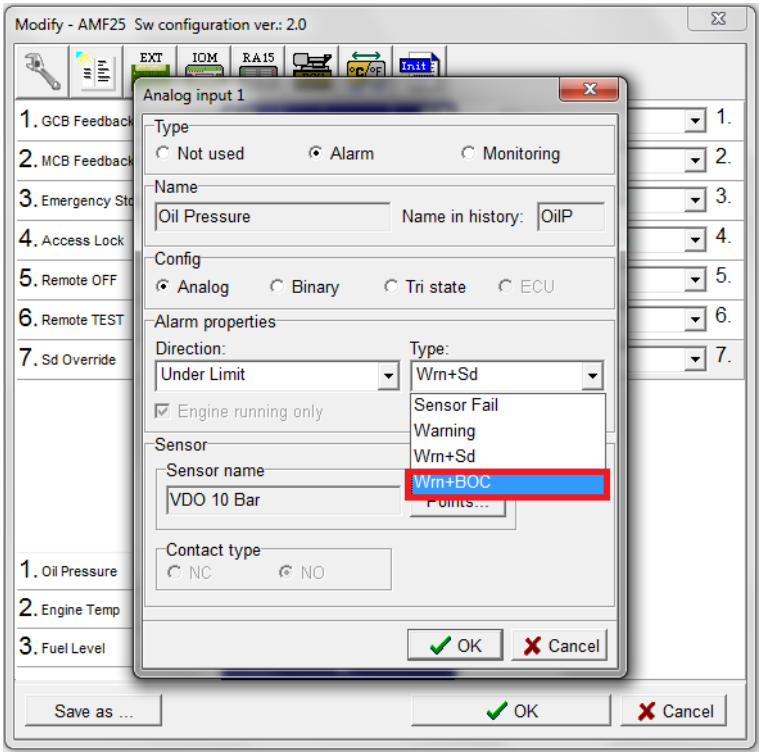
- **EF Protection [ENABLED / DISABLED]**
- **EF CT Ratio [A]**
- **EarthFault Sd [A]**
- **EarthFault Del [s]**

EF Protection is active (if enabled) from engine Starting period to the end of Cooling period and also in Emergency manual mode.

Hint:
More details are in reference guide IL-NT-AMF-2.0.pdf available at http://www.comap.cz/products/detail/intelilite-nt-amf-25/downloads/#tabs

- **BOC protection on Analog and Binary inputs**

Now is alternatively possible to choose Breakers Open and Cooling (BOC) protection on analog and binary inputs.



- **MRS function in AMF models**

In AMF 8, 9, 20, 25 controllers is implemented function for changing between AMF and MRS mode. The mode can be changed by new binary input AMF Function with higher priority than new setpoint Operation Mode in AMF setting.

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When MRS mode is selected the controller will not perform AMF functions anymore. MCB button will be inactive and also mains measurement and protections will be disabled.The controller will keep TEST mode and the genset in AUT mode will be able to start by *Rem Start/Stop* binary input.

Hint:
This can be usefull for customers holding only one IL-NT model on stock or for rental units. Screens on controller LCD are slightly adjusted while switched to MRS mode, however they are not the same as corresponding MRS model.

- **Changes in GenerProtect setpoint group**

Some of generator protections were changed from Sd to BOC (Breaker Open and genset Cooldown). This protections is now available in all applications (including MRS3,4 and AMF 8,9).

- **Gen >V Sd [V]**
- **Gen <V BOC [V]**
- **Gen V Del [s]**
- **Gen >Freq BOC [%]**
- **Gen <Freq BOC [%]**
- **Gen Freq Del [s]**
- **Short Crct BOC [%]**
- **Short Crct Del [s]**

- **Idle/Nominal speed in MRS 3,4 and AMF 8,9**

Binary output *Idle/Nominal* and setpoints *Idle Time, Cooling Time and Cooling speed* are now available in these models.

- **Support for three analog inputs in MRS 3,4 and AMF 8,9 controllers was added**

- **New setpoint** *WrnMaintenance* **in Engine protection group in MRS 3,4 and AMF 8,9 controllers was added**

- **Binary input GCB Feedback to MRS 10,11,15,16 applications was added**

- **History records based on running hours with no RTC controllers is implemented**

InteliLite^{NT} models MRS3, MRS4, MRS10, MRS11 and AMF8, AMF9, AMF20 newly contain full history log. Timestamp is based on engine hours instead of Real Time Clock used in models MRS15, MRS16, MRS19 and AMF25. Smallest time step with engine hours history is 1 minute for engines without ECU and 3 minutes for engines with ECU connected. Maximum number of records varies based on configuration but it is up to 100+ records.

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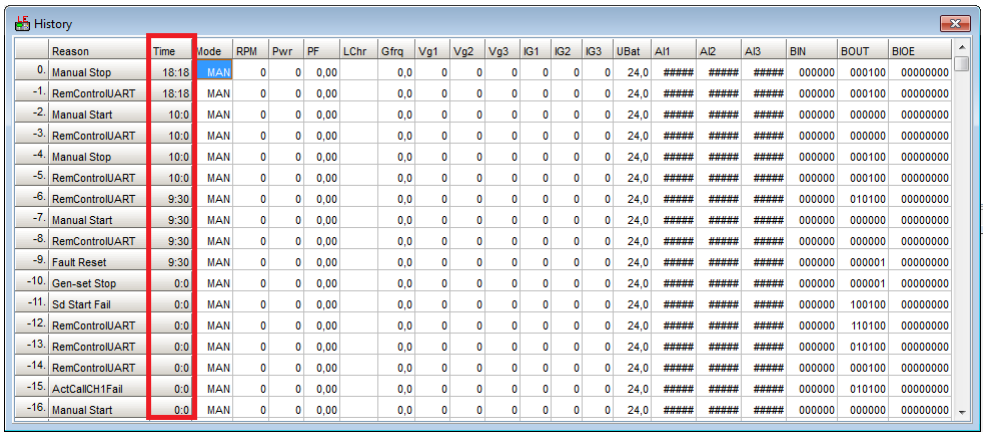
History

	Reason	Time	Mode	RPM	Pwr	PF	LChr	Gfrq	Vg1	Vg2	Vg3	IG1	IG2	IG3	UBat	AI1	AI2	AI3	BIN	BOUT	BIOE
0.	Manual Stop	18:18	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000100	00000000
-1.	RemControlUART	18:18	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000100	00000000
-2.	Manual Start	10:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000000	00000000
-3.	RemControlUART	10:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000000	00000000
-4.	Manual Stop	10:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000100	00000000
-5.	RemControlUART	10:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000100	00000000
-6.	RemControlUART	9:30	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	010100	00000000
-7.	Manual Start	9:30	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000000	00000000
-8.	RemControlUART	9:30	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000000	00000000
-9.	Fault Reset	9:30	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000001	00000000
-10.	Gen-set Stop	0:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000001	00000000
-11.	Sd Start Fail	0:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	100100	00000000
-12.	RemControlUART	0:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	110100	00000000
-13.	RemControlUART	0:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	010100	00000000
-14.	RemControlUART	0:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000100	00000000
-15.	ActCallCH1Fail	0:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	010100	00000000
-16.	Manual Start	0:0	MAN	0	0	0,00		0,0	0	0	0	0	0	0	24,0	#####	#####	#####	000000	000000	00000000

- **50/60 Hz switch – Alternative configuration**

New binary input Alt. Config. is available. Based on the value on this BI can be selected configuration 1 or 2 in new setpoint group Alternate Cfg.. Controller will react on change of binary input only while engine is stopped. On successful change of input the new record in history ("Nominal1Active", "Nominal2Active") is added.

- **Nominal RPM 1 [RPM]**
- **Nominal Freq 1 [Hz]**
- **NomVoltsPh-N 1 [V]**
- **NomVoltsPh-Ph1 [V]**
- **Nomin Current1 [A]**
- **Connect Type 1 [-]**
- **ECUFreqSelect1 [PRIMARY/SECONDARY]**
- **ECU SpeedAdj 1 [%]**
- **Nominal RPM 2 [RPM]**
- **Nominal Freq 2 [Hz]**
- **NomVoltsPh-N 2 [V]**
- **NomVoltsPh-Ph2 [V]**
- **Nomin Current2 [A]**
- **Connect Type 2 [-]**
- **ECUFreqSelect2 [PRIMARY/SECONDARY]**
- **ECU SpeedAdj 2 [%]**

Parameters related to ECU are displayed only after ECU is selected in configuration window.

Hint:
If the configuration 1 will contain setting for 50Hz and configuration 2 for 60Hz it is possible to use this feature for 50/60 Hz switch.

- **Engine stop modification**

Since FW version 2.0 there are implemented following changes.

- The length of Stop time is not predefined by setpoint.
- Stop fail was changed from Sd to Wrn.

During the Stop Time the controller automatically monitor engine running conditions. When there is no engine running indications (RPM < 2, Generator voltage < 10V and Oil pressure < Starting OilP) the controller will wait additional 2s to confirm these conditions. After that the controller start countdown 10s timer (this timer is invisible on the controller screen). If there is still no engine running indication (after these 10s) the Stop time is automatically finished.

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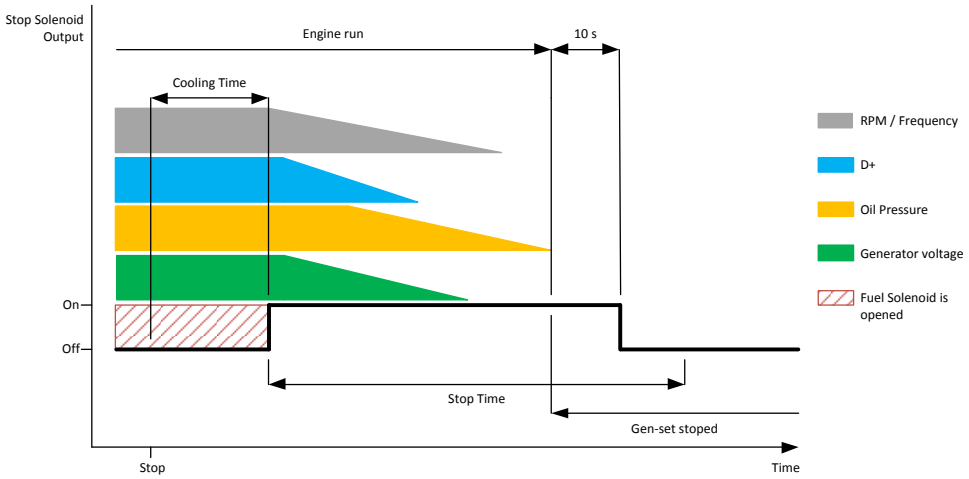
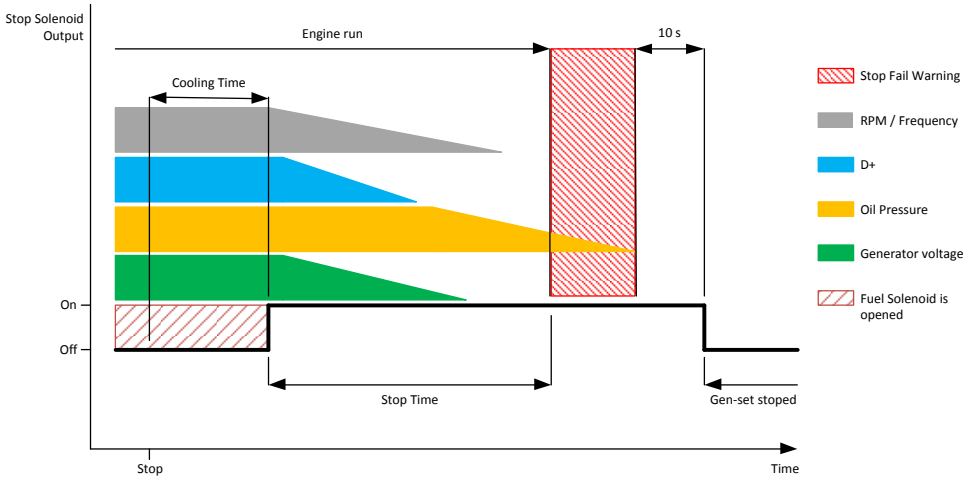


When the total time of stopping will exceed setpoint Stop time (in Engine Params) than the Stop fail warning and related binary outputs are activated. The controller will continuously try to stop the engine.



- **Dual AMF**

  Dual AMF is system of two mutual stand-by gen-sets, which switches in supplying the load. Usual work operation is that after mains fails, first genset starts, takes the load and works for dedicated time interval, e.g. 6 hours. Than it hand over the load to other gen-set, which runs for another 6 hours. This operation system continues as long as mains is failed. Transfer of load from one gen-set to other one is with blackout.

  - System works for two gensets with IL-NT-AMF25 controllers. One controller is Master and second is Slave. Other models of IL-NT are not supported.
  - System needs one binary input and one binary output in each controller.
  - System works only in AUT mode
  - For correct operation both controllers have to have set identical times/delays for mains protections, mains return delays and other delays in setpoint group AMF Settings.
  - Mechanical interlock between GCB of one gen-set, GCB of second gen-set and MCB breaker is required due to safety reasons.

  Detailed description:

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- There is a basic communication interface between Master and Slave controller realized by interconnection of two wires (DualAMFCtrlIn, DualAMFCtrlOut) on both.
- Binary input DualAMFCtrlIn and binary output DualAMFCtrlOut adjust their function automatically based on fact if there are used in Master or in Slave controller.
- Master controller has information about Slave controller and when Slave failure or cannot work the Master will substitute it.
- AMF start of Slave controller can be blocked by Master but when Master controller has failure or cannot work the Slave will substitute it.

- When there is incorrect wiring or only one controller is configured as Master or Slave than the controller will display "*DAMF Discconect*" in alarm list.
- In case of incorrect configuration (two Masters, two Slaves, both controllers are not in AUT mode) the controller will display "*DAMF ConfigError*" in alarm list.
- When there is any problem with Slave controller Master will display "*DAMFSlaveDown*" in alarm list.

- Every time when any Alarm related to DAMF function is occurring both of the controllers are switched to normal AMF operation. That meaning that at least one of the controllers is able to supplying the load until failure on both of them.

- To decide which genset should start in case of mains fail, there is rule that if mains fails in time period 00:00AM – 11:59AM, than Master will start and take the load. If mains will fail in period 12:00PM – 23:59PM, than Slave will start and take the load.
- Master controller will prevent unnecessary blackout in case, when it is over 12:00 AM (Slave starting period), and Master is already supplying load, but not in AUT mode with DualAMF function enabled, and mode is changed to AUT. Or if Master is already supplying load in AUT, and it is switched to DualAMF operation after 12AM (in Slave's starting period).
- Setpoint "MCB Opens On" has to be setted to MAINSFAIL. Otherwise system would not correctly work if Slave would start to stand-by as first. Master would not know when to open MCB breaker.
- In case one gen-set should run in stand-by, but it fails, the other gen-set runs instead. After failed gen-set recovers there is 60s delay for load transfer back to this gen-set.
- Setpoints related to Dual AMF function are located in "AMF Settings" group.
- Setpoint "DualAMFRole" with settings [MASTER, SLAVE] is determining if controller behaves as Master or Slave in Dual AMF system. One controller has to be setted to MASTER and second as SLAVE, for correct function of system.
- Binary input "DualAMFRole" can help in switching roles of both gen-sets. Both gen-sets can be easily transformed from Slave to Master and vice versa. Log1 = MASTER, Log 0 = SLAVE. Binary input has higher priority over manual setting of setpoint. If binary input is configured, manual change of setpoint is disabled.
- Setpoint „DualAMFTime" control time period of gen-sets switching in supplying the load. Settings are [1..24], step = 1 hour. Default setting is 6 hours. This timer is reset when load is transferred back to healthy mains

Example of setting the Dual AMF function:

1. Prepare two IL-NT-AMF25 controllers. Copy the identical configurations to both of them.
2. Use wiring with mechanical/electrical interlock between all breakers (GCB1, GCB2 and MCB)
3. Configure one binary input on each controller as DualAMFCtrlIn.
4. Configure one binary output on each controller as DualAMFCtrlOut.
5. Interconnect DualAMFCtrlOut from one controller with DualAMFCtrlIn on second controller. Interconnect DualAMFCtrlOut from second controller with DualAMFCtrlIn on first controller. So you have two wires interconnecting both controllers.
6. Set setpoint "MCB Opens On" to MAINSFAIL on both controllers.

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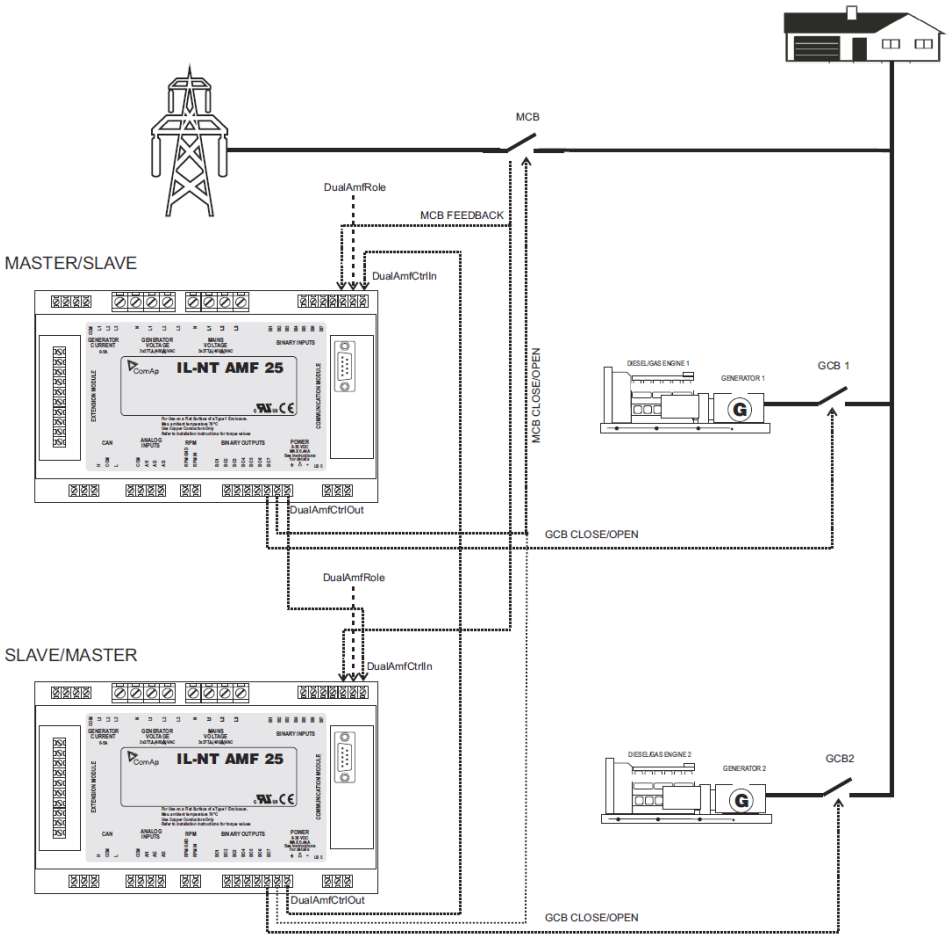
7. Set „DualAMFTime“ to time period in which you wish to switch gensets in supplying the load. For example 6 hours. Make this setting on Master controller. Only Master controller controls this timer.
8. Set "Operation Mode" to MASTER on first controller and to SLAVE on second controller.
9. Change the mode of both controllers to AUT.
10. System is now ready for DualAMF function.

Wiring of system with selectable MASTER and SLAVE role settings:



Hint:
GCB and MCB breakers feedbacks are recommended, but not required.

- **Setpoint groups hiding in LiteEdit**

It is possible to change the number of visible setpoints/setpoint groups/logical inputs and logical outputs in the controller through LiteEdit. This can help to make controller easier for service, clearer for user and simpler in production.

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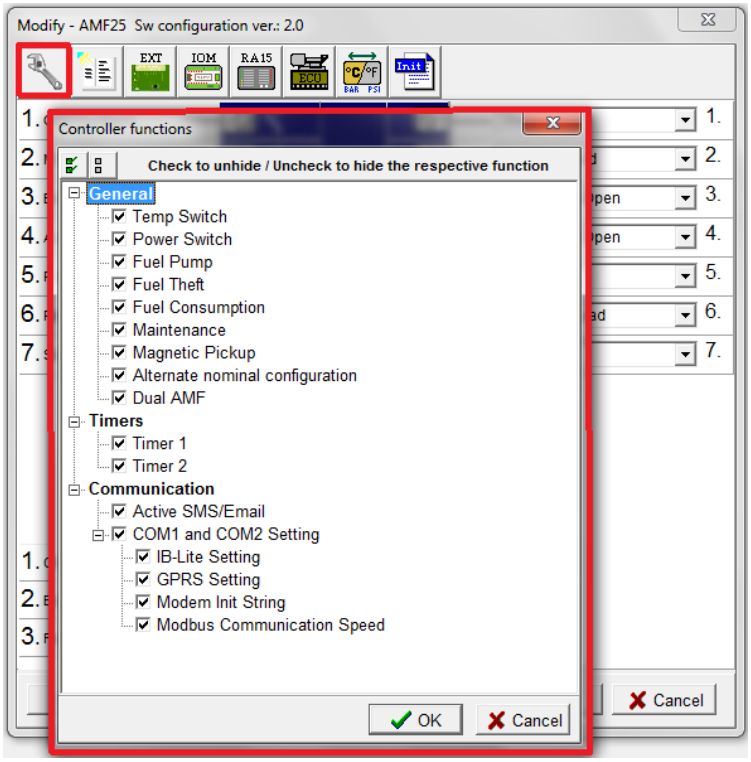

The following functions is possible to **hide and disable** in the controller and LiteEdit

Temp Switch, Power Switch, Fuel Pump, Fuel Theft, Maintenance, Magnetic Pickup, Alternate nominal configuration, Timer 1/2, Active SMS/Email

The following functions is possible to **hide** in the controller and LiteEdit

Fuel Consumption, Dual AMF, COM1 and COM2 Setting, IB-Lite Setting, GPRS Setting Modem Init String, Modbus Communication Speed

- **User Interface modification**

User interface mode was improved by bigger font for better visibility and reduced number of visible measured values. For mode selection press and hold 

button and then press four times 

button. The screen contains switch between User or Engineer mode. When User mode is selected the controller will hide screens with setpoints adjustment and history information while texts font in measurement screens is changed for better readability.

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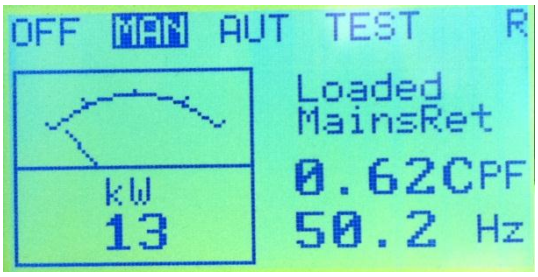


Hint:
For MRS3,4 and AMF 8,9 is automatically preset the User mode after the unit is reprogrammed

- **ESF files are supported since IL-NT version 2.0**

This feature brings easier support of new ECU on the market and flexible parameter adjustment for currently supported Electronic Control Units.

- **New default idle speed for ECU engines**

New Idle speed for all ECU engines is predefined at 900RPM (requested value). If the ECU follows only binary information about Idle speed the actual speed depends on internal ECU settings.

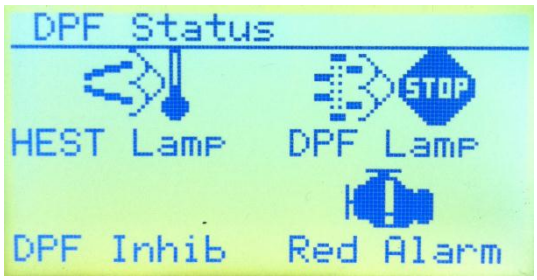
- **JCB ECU is supported**

- **Improvement in yellow and red lamp reading with VolvoMarineAux engine**

- **MTU SMART connect is supported**

- **Tier IV support**

In AMF 25 and MRS19 when configured ECU provides information over CAN bus related to Tier IV, than new screen with related icons and corresponding alarms appears.



Alarm description

HEST (High Exhaust System Temperature) Lamp
DPF (Diesel Particulate Filter) Lamp
DPF (Diesel Particulate Filter) Active Regeneration Inhibit Status
Red Stop Lamp
Yellow Warning Lamp

TIER IV is supported in following engines

Cummins PGI 1.1
Deutz EMR4
JohnDeer JDEC

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- **Power switch function**

Power switch function and corresponding binary output will be activated 30s after the engine is running.

- **New alternative way of entering the access code via Modbus**

Beside register 24535 it is possible to use newly also registers 46339 – 46346 for entering the access code via modbus. Useful mainly with IB-Lite and Modbus TCP.

- **Setpoint overwriting during firmware update**

Two setpoints removed from group of setpoints, which are not overwritten during firmware update. „Genset Name“ and „SummerTimeMode“ are now overwritten by values from updated configuration and will no longer stay yellow (out of range) after update process. The rest of parameters from this group are not overwritten to prevent loosing of connection, time or mode of operation.

- **AMF engine start**

When the AMF function will start the engine than the engine will be running at least for the time which is defined in MainsReturnDel setpoint, even if the mains would return in the meantime.

- **Return from Island**

In older FW versions in case that setpoint „RetFromIsland“ = MANUAL could happen that after mains failed, generator started, controller changed mode to MAN and operator could manually transfer the load back to mains. But if mains returned and generator failed, the load remained unsupplied.
This situation is now fixed by leaving controller in AUT mode, after mains failed and genset start. If mains returns (and return delay will pass) operator is allowed to manually press MCB button to transfer the load to mains. If the mains will return and generator will fail afterwards, controller will automatically transfer the load to healthy mains.
In case of return of healthy mains, after return delay and if the „RetFromIsland“ = MANUAL, than new alarm will appear in alarmlist „Wrn Manual Restore“. This alarm will not trigger horn nor alarm SMS/Email.¨

- **Backlight Timeout for MRS controllers**

In models MRS10, MRS11, MRS15 and MRS16 is added new feature of configurable timeout for LCD backlight – setpoint „Backlight Time“ [0..241min] in Basic settings. This timeout is counted after last pressed button. When it passes LCD backlight is switched off, which have possitive effect on engine battery lifetime.
When value „0“ is setted the feature is disabled and backlight stays on permanently.

- **IL-NT MRS19 supported in IL-NT 2.0**

  MRS19 is model dedicated for North American market with additional 6 status LED diodes. Implementation is based on firmware's IL-NT VA and IL-NT JD.

  - Added binary inputs "AO Lxy Switch 1", "AO Lxy Switch 2" and binary output "Manual Ready"
  - Added auxiliary fuel transfer function including:
    - binary inputs "Transfer Arm" and "FlTranOverRide"
    - binary output "Fuel Pump On"
    - setpoints "Transfer Arm" and "TransferWrnDel"
  - User mode screens are in MRS19 autorotating with different selection of measured values compared to Engineer mode.
  - Power Switch and Temp Switch functions are now part of MRS 19. Detailed description can be found in reference guide.
  - Added logical binary output "BattChrgFail" triggered by alarm „BattChrgFail“. Alarm is caused by logical binary input "BattChrgFail" activation with configurable delay „BatChrgFailDel“ [0..15] min.
  - General ECU engines update incl. fault codes for MTU ADEC.

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- New Idle speed for all ECU engines at 900RPM (requested value). If the ECU follows only binary information about Idle speed the actual speed depends on internal ECU settings.
- Added logical binary input "Idle Switch". When this switch is on, controllers sends idle speed request to ECU.
- New way how LED "Supplying Load" works. It lits up when the generator current is > 0,5% (approx.) of the CT ratio.
- TIER IV support for AMF25 and MRS19 is implemented.
- Unified modbus registers and comm. object numbers with rest of IL-NT models. Register numbers and comm. objects numbers are taken from AMF25/MRS16.

- **New default value of setpoint "Short Crct Sd"**

Previous default value "0,00s" was replaced by new "0,04s" which better reflects the common standard for short circuit protection.

- **New range of „Max Crank Time"**

Range for this setpoint is now wider – [0..255] s in models MRS10 – AMF25.

- **New range of „StopTime"**

Range for this setpoint is now wider – [0..600] s in all models.

- **Text setpoint adjustment from keyboard**

It is possible to edit string setpoints directly from the front keyboard of the controllers. This feature works for all latin based fonts. It does not support graphical fonts (eg. Chinese font).

- **Status binary outputs for plug-in modules renamed**

Logical binary output names for all extension plug-in modules (IL-NT-BIO8, IC-NT-CT-BIO7, IL-NT-EFCPM ..) unified to "ExtBI 1 Status" .. "ExtBI 8 Status".

- **RTC backup battery**

The backup battery is controlled every 24 hours and not only when the power supply is switched on.

- **Sd Start fail**

This alarm is called when all crank attempts fail. Successful start attempt is recorded when running conditions are detected after ProtectHoldOff time.

Repairs

- **Vibrating Detroit Diesel DDEC IV**

At Detroit Diesel DDEC IV in some cases the engine vibrated on PAGE button press. Issue solved by adjustment of ECU communication.

- **MTU ADEC control**

Frequency switching between 50Hz and 60Hz, engine fault reset and engine start via CAN bus did not work with MTU ADEC J1939 electronic engine support. It has been fixed.

- **SummerTime Mode**

Fixed situation where controller did not changed the time from summer/winter to winter/summer, because it was switched off during particular time of change. Newly controller switches time even when it is powered up later on. Parameter SummerTime Mode checks also whether it's setting corresponds with actual date and time.

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- **Fixed AMF starting while mains was OK**

Exceptionally the controller could start the engine in Auto mode even if the mains was healthy. When Setpoint MCB Opens On was set to GENRUN, controller was in AUT mode and MCB was closed. Then if the controller was switched to MAN just when EmergStartDel exceed and before MCB was opened and after the mains become healthy again in MAN mode and the controller was switched to AUT mode the engine has been started.

- **Analog input doesn´t display #####**

When the input value of AI will exceed preset range then the controller will display the top range value instead of #####.

- **Automatic fault reset of MCB Fail**

When MCB breaker is supplied from Mains and the controller will try to close it in the same time as mains fail then the controller will evaluate MCB fail. In this case there is applied automatic fault reset which will allow next MCB close attempt.

- **Alarm list records now contain Phase to Phase voltage for Mains and Generator**

- **Timer ON and Timer OFF are recorded to the alarm list only in AUT mode**

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5. Main changes in IL-NT-1.5.2

New features

- Update of Cummins CM570 – updated

6. Main changes in IL-NT-1.5.1

New features

- New conditions for activating Sd Stop Fail alarm:
  - for generator voltage < 50% of nominal voltage, Sd Stop Fail has delay 1s
  - for generator voltage > 50% of nominal voltage, Sd Stop Fail has delay 200ms
  - for oil pressure > starting oil pressure, Sd Stop Fail has delay 1s

  For detected D+ voltage or RPM, there is no delay.
- Measuring core updated, generator currents and power are suppressed if current level is <1% of CT range.
- Repetitive LCD reinitialization is added to every program cycle.
- Setpoint ECU SpeedAdjust supported in Cummins 850.
- Switching the droop for MTU ADEC ECU off, from 4% to 0%.
- New “Perkins ECM 1300” engine support added. This requires to use archive version 1.5.2.

Repairs

- Timers:
  a. Fixed activating the timer function (related setpoints TimerX Function). Now is possible to execute timer and also related binary outputs only when controller is in AUT mode. Either by manual changing the mode or by binary input Remote AUT.

     Moreover Timer1 has higher priority over Timer2. So if Timer1 is configured for TEST mode and Timer2 is configured for OFF mode, controller will work in TEST mode.

  b. Fixed problem, that controller did not activated timers when it was not powered on during time of scheduled activation of timer. Now controller activates timer whenever it is powered up in period, where timer should be already running.

  c. Timers fixed in AMF8 and AMF9, so system can periodicaly start engine in AUT mode.
- In american date format were months interpreted incorrectly – problem fixed.
- Iveco engine update:
  a. TSC1 frame for Iveco NEF and Cursor updated.
  b. Fixed reading ECU values from Iveco Vector.
- Fixed problem with rare MCB opening after controller powered up, when configured as normally closed.
- IL-NT models MRS3, MRS4, AMF8 and AMF9:
  a. Fixed issue with Init state after reconfiguration. This requires to use archive version 1.5.2.
  b. Cloning – now system remembers active language in source controller for cloning and this language is activated in clone as well.
- Updated Cummins CM850 – ECU frames priority.

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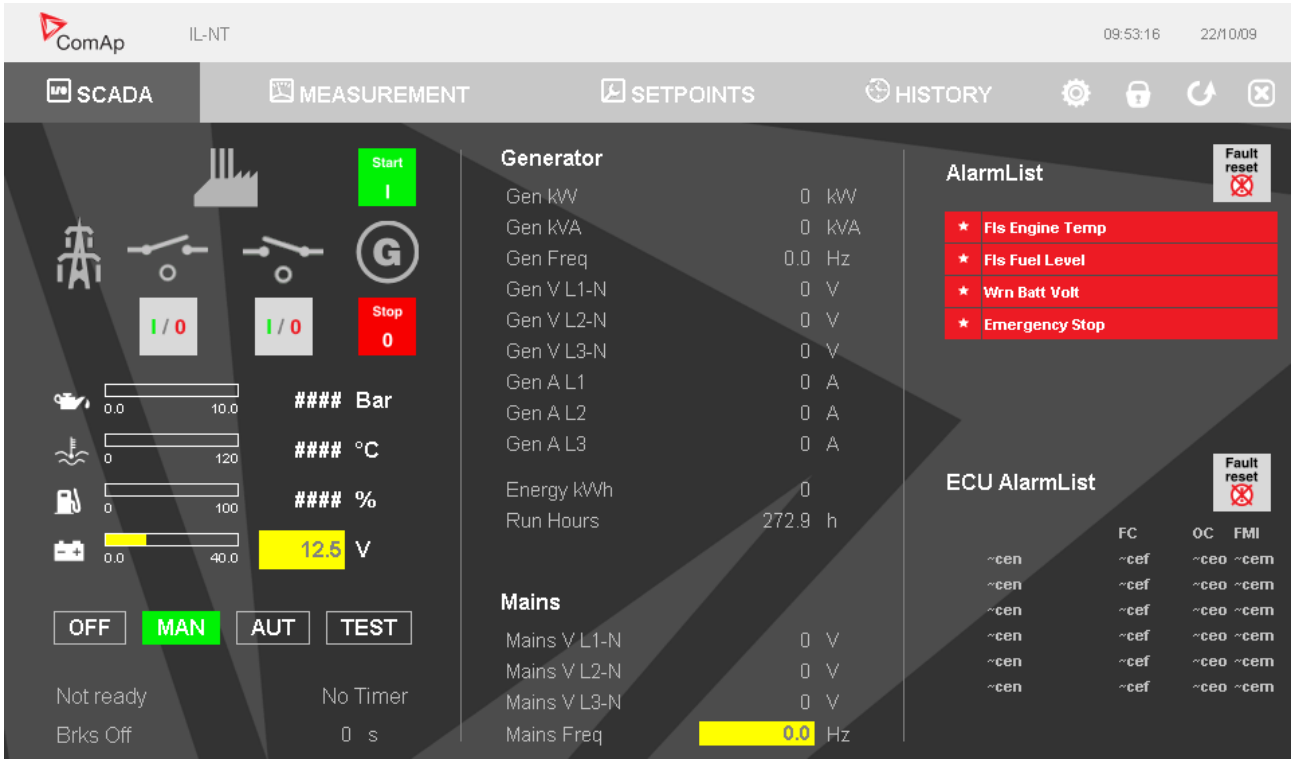
7. Main changes in IL-NT-1.5

New features

- **Webserver for IB-Lite supported in IL-NT:**

New secured way of monitoring and controlling the genset from any point in world using your web browser! Clear overview control of the state of engine, its settings and history. Easy and user friendly usage.

Scada window:



Measurement window:

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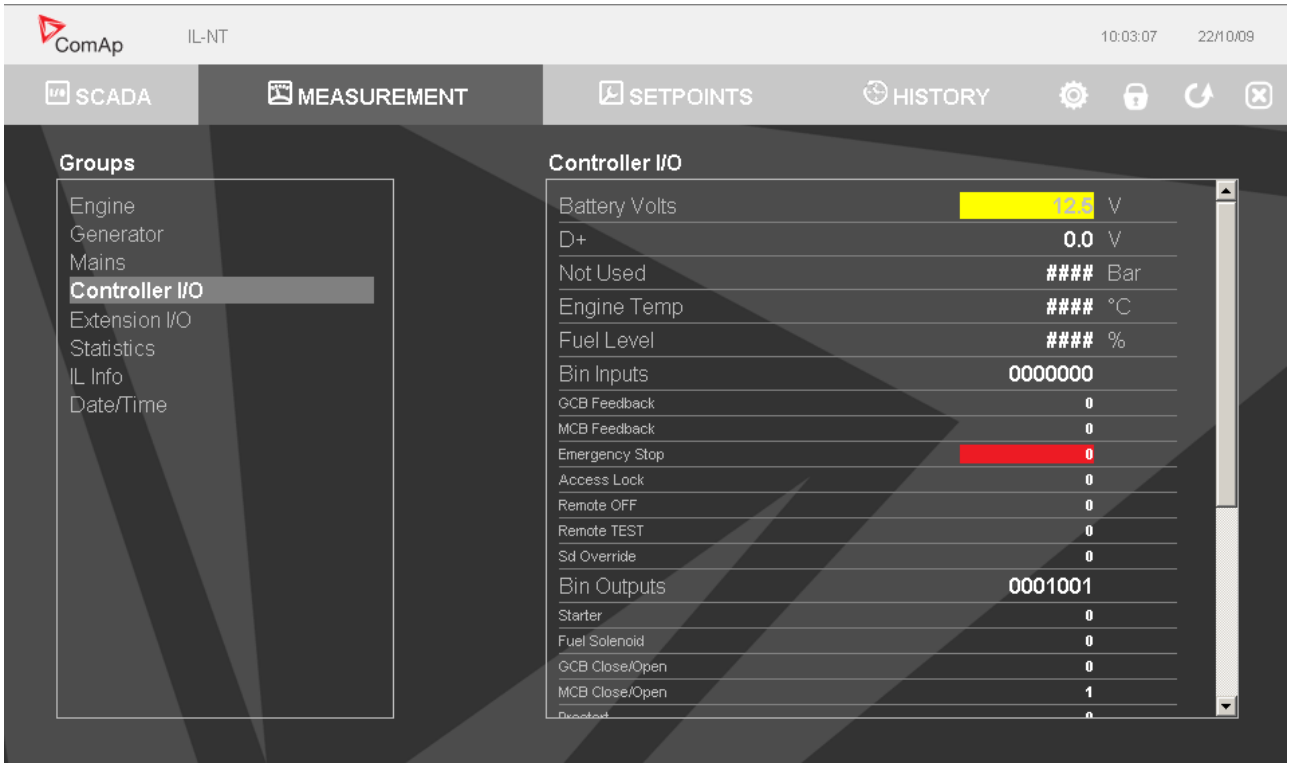
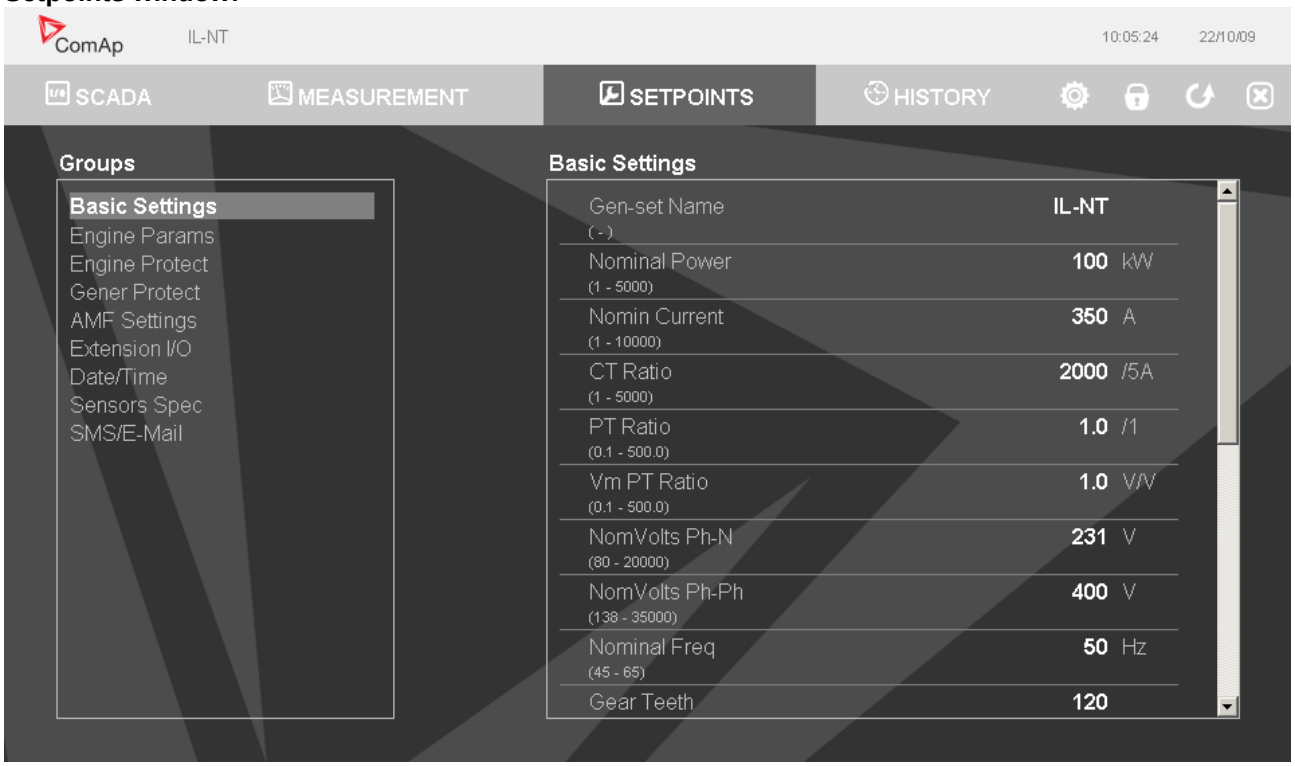


Setpoints window:



History window:

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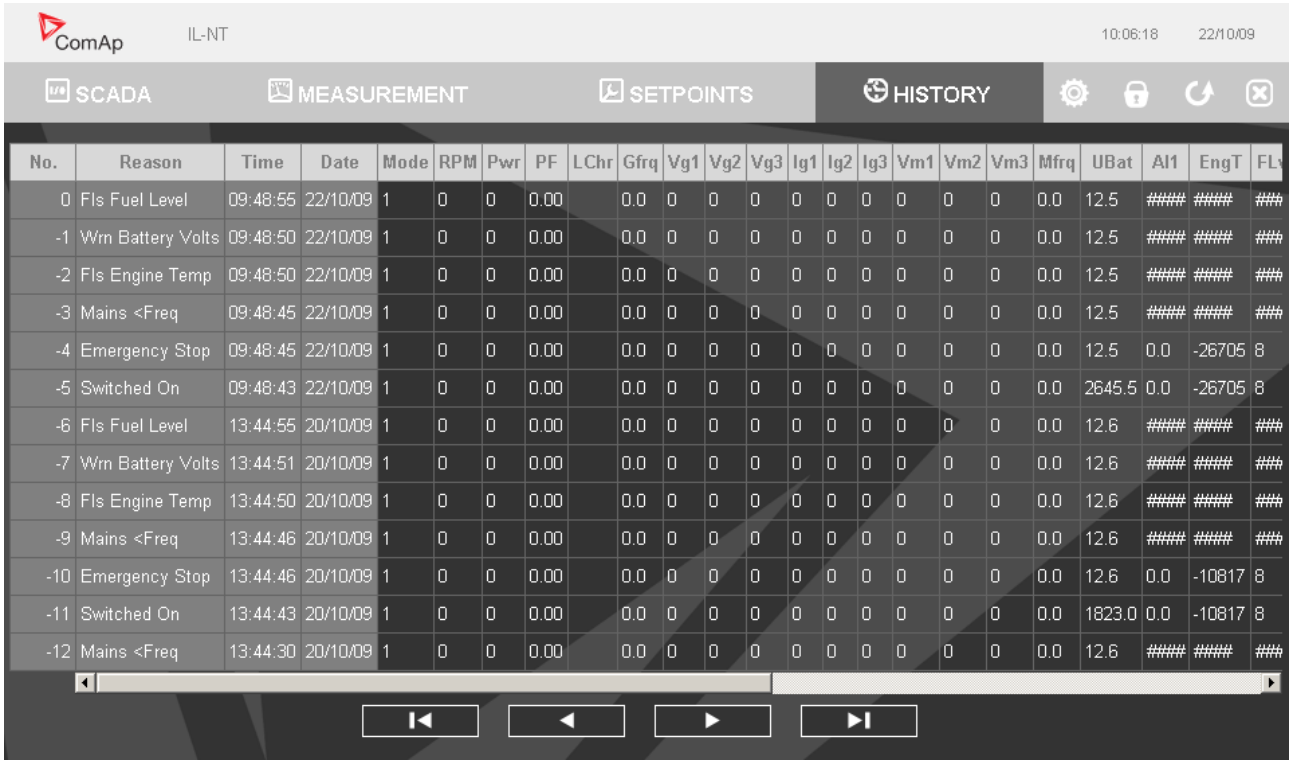
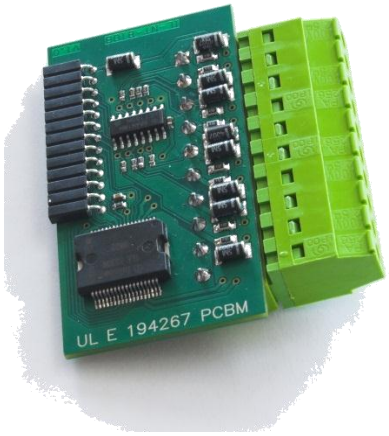


No.	Reason	Time	Date	Mode	RPM	Pwr	PF	LChr	Gfrq	Vg1	Vg2	Vg3	Ig1	Ig2	Ig3	Vm1	Vm2	Vm3	Mfrq	UBat	AI1	EngT	FL
0	Fls Fuel Level	09:48:55	22/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.5	#####	#####	###
-1	Wrn Battery Volts	09:48:50	22/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.5	#####	#####	###
-2	Fls Engine Temp	09:48:50	22/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.5	#####	#####	###
-3	Mains <Freq	09:48:45	22/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.5	#####	#####	###
-4	Emergency Stop	09:48:45	22/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.5	0.0	-26705	8
-5	Switched On	09:48:43	22/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	2645.5	0.0	-26705	8
-6	Fls Fuel Level	13:44:55	20/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.6	#####	#####	###
-7	Wrn Battery Volts	13:44:51	20/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.6	#####	#####	###
-8	Fls Engine Temp	13:44:50	20/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.6	#####	#####	###
-9	Mains <Freq	13:44:46	20/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.6	#####	#####	###
-10	Emergency Stop	13:44:46	20/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.6	0.0	-10817	8
-11	Switched On	13:44:43	20/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	1823.0	0.0	-10817	8
-12	Mains <Freq	13:44:30	20/10/09	1	0	0	0.00		0.0	0	0	0	0	0	0	0	0	0	0.0	12.6	#####	#####	###

Hint: *This feature requires IB-Lite optional plug-in module and visible connection of controller to ethernet.*

- **Measuring core update**, support for AI measuring up to 15kOhm
- **IL-NT BIO8 Hybrid binary input/output module available**
  IL-NT BIO8 is optional plug-in card. Through this card controller can accommodate up to 8 binary inputs or outputs. In LiteEdit PC configuration tool (version 4.4 and higher) it is possible to easily choose if particular I/O will be binary input or output.

  To insert the module, you must open the cover first (use screwdriver to open) and then insert the module into slot. Once you have inserted it, the module will snap under plastic teeth. It is supposed to be installed permanently. Should you need to remove it, the safest way is to remove whole back cover and than remove module manually.
  Installing IL-NT BIO8 module is similar to installing RS 232 module. The difference is that module fits to “extension module” slot and after installing IL-NT BIO8 you do not put back the small cover.



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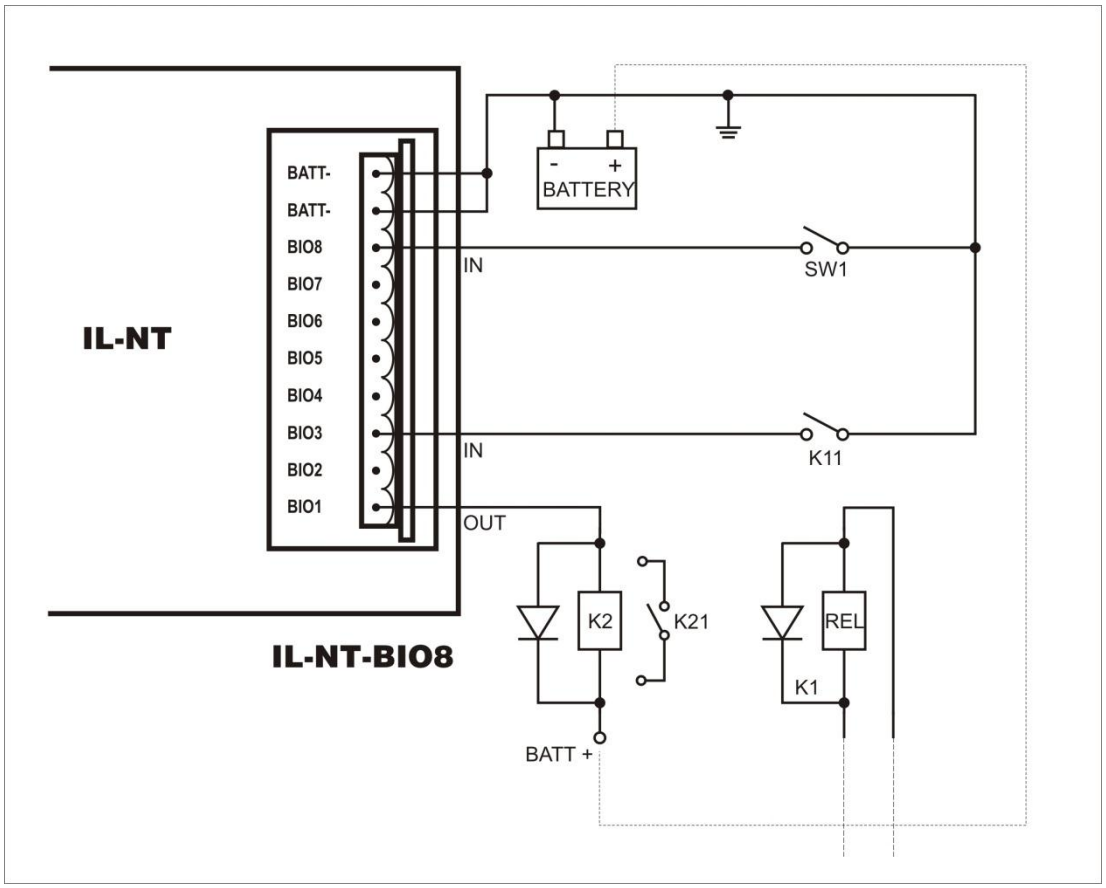

Technical details:

IL-NT BIO8 plugs into IC-NT controller EXTENSION MODULE port.
8 dedicated pins of the plug-in card's terminal can be configured as binary inputs or outputs.

Binary inputs

Number of inputs	8
Input resistance	4.7 kΩ
Input range	0-36 VDC
Voltage level for close contact indication (Logical 1)	< 0.8 VDC
Voltage level for open contact indication (Logical 0)	> 2 VDC
Max voltage level for open contact indication	8-36 VDC

Binary open collector outputs

Number of outputs	8
Maximum current per pin	0.5 A
Maximum switching common current	2 A
Maximum switching voltage	36 VDC

Hint:
Binary inputs are not galvanically isolated.

- **Total PF value** – newly calculated as PF = P / S. It will reflect weight of each phase in calculation.
- **Automatic checking of password during change to be maximally 9999**, if it is bigger value it will be automatically changed to 0. LE will prevent to write bigger value than 9999.
- **Cyclic rotation of value of password in case of using arrows on controller**
- **Decimal switching for power measurement added**

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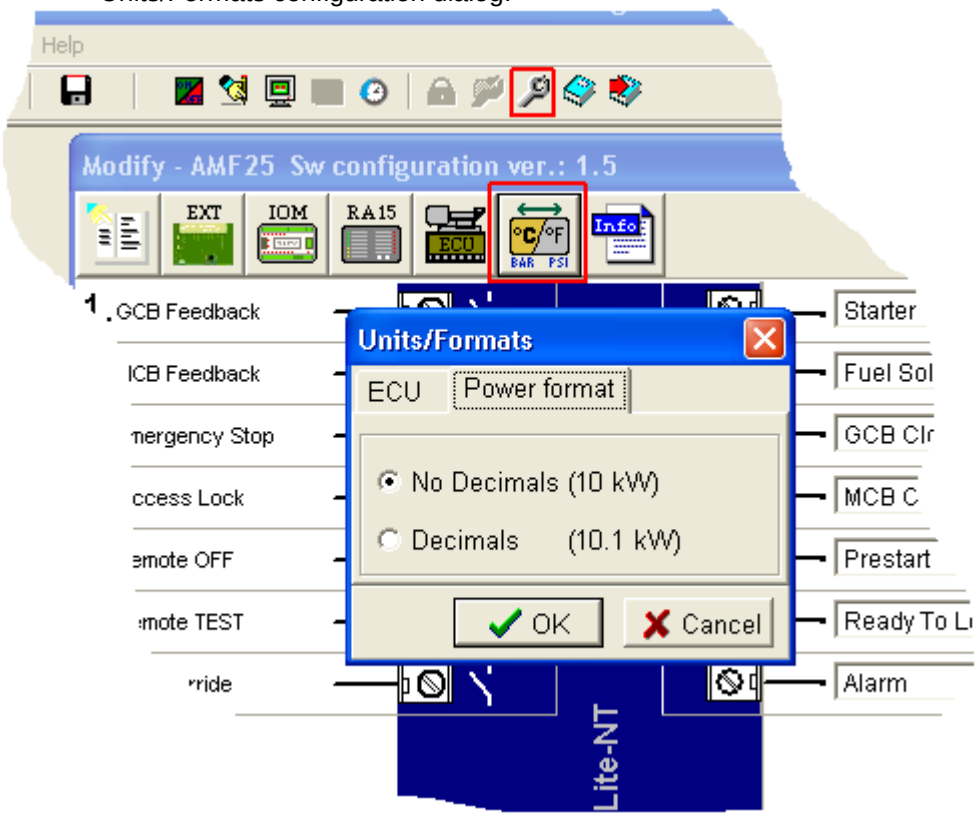
Possibility to select format for power measurement has been added.

Format can be set via LiteEdit PC configuration tool version 4.4 and higher using its Units/Formats configuration dialog:



- **Informations about configured engine ECU** (ESF file used) on Init screen of controller
- **New way of detection of shorted or opened AI sensor**
- **Changed stopping of MAN and Scania engines** – stop solenoid used
- **Minor change in TSC1 frame in John Deere -** Override Control Mode Priority changed
- **General update of Cummins CM850**
- **Updated Cummins CM850 frame TSC1** – frame is not sent because it caused issues with controlling the ECU
- **Newly supported DaimlerChryslerADM2** in ECU lists Mobile a Allspeed. It is not available in ECU lists InteliLite a Gensets
- **Customer Logo screen added**

  Screen dedicated to information provided by customers such as contact numbers, service technician contact and customer message for end users of gen-set has been added. Configuration of this screen is only done by LiteEdit PC software (v. 4.4 and higher).

  Information is displayed on so called “Init Screens” which are displayed after controller is switched on or reprogrammed. It is also possible to call these screens from any measurement screen by pressing ENTER and PAGE buttons concurrently and then only PAGE button separately.

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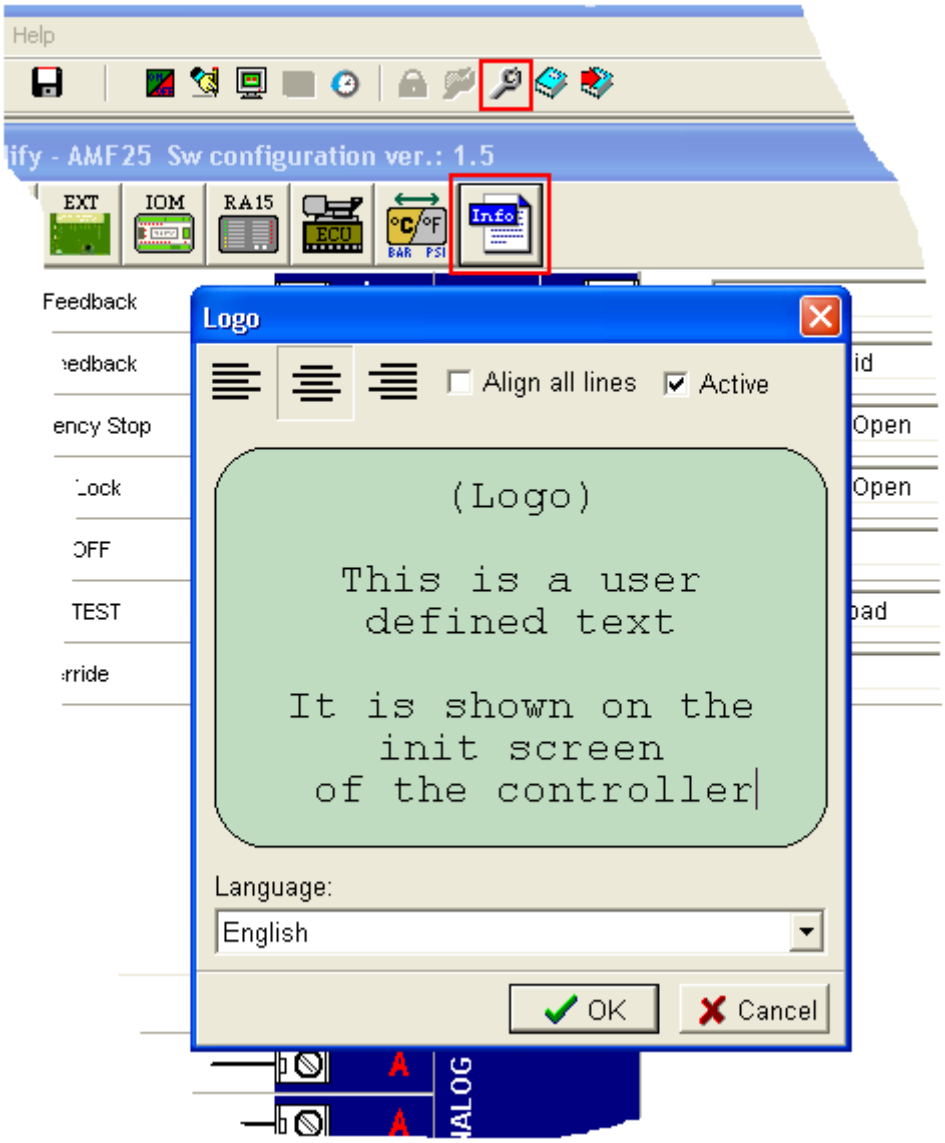

- **"User mode" interface as default setting** - IL-NT MRS3, MRS4, AMF8, AMF9
- **Update of AOUT curves** – new curves available
- **Power switch function**

Power Switch
This switch is assigned to the gen-set active power. The setpoints PowerSwitch ON [kW] and PowerSwitch OFF [kW] for on and off level adjustment are located in the setpoint group Engine Params. Typical usage for this binary output can be switching of dummy load. The output behaves

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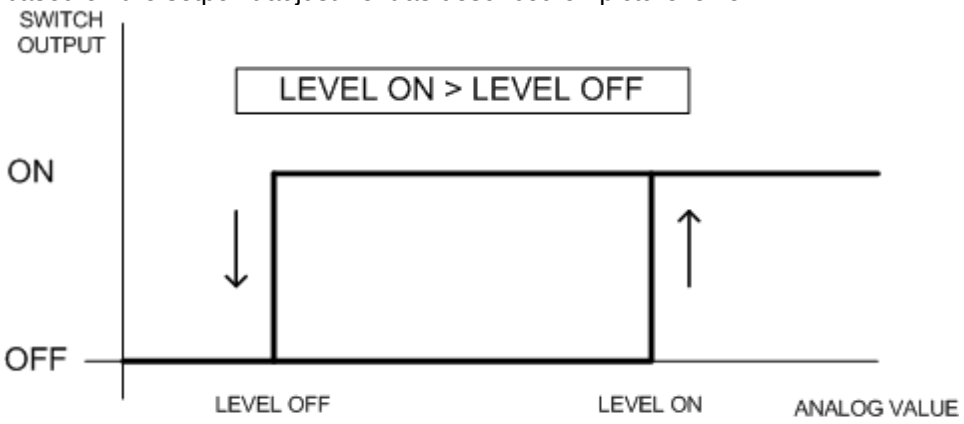
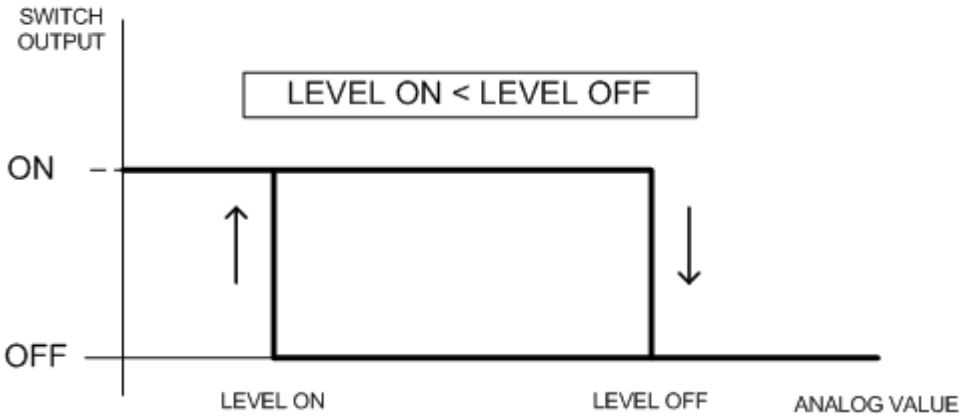
based on the setpoint adjustment as described on picture lower:





New setpoints:

PowerSwitch ON [kW]
Threshold level for switching the binary output “Power Switch” on.
Step: 1
Range: 0 – 32000 kW

PowerSwitchOFF [kW]
Threshold level for switching the binary output “Power Switch” off.
Step: 1
Range: 0 – 32000 kW

- **Temperature switch function**

Temp Switch
This switch is assigned to the controller’s analog input 2 – commonly used for water temperature sensing. The setpoints TempSwitch ON and TempSwitchOFF for on and off level adjustment are located in the setpoint group Engine Params. Typical usage for this binary output can be activation of fans or heaters. The output behaves based on the setpoint adjustment as described on picture lower:

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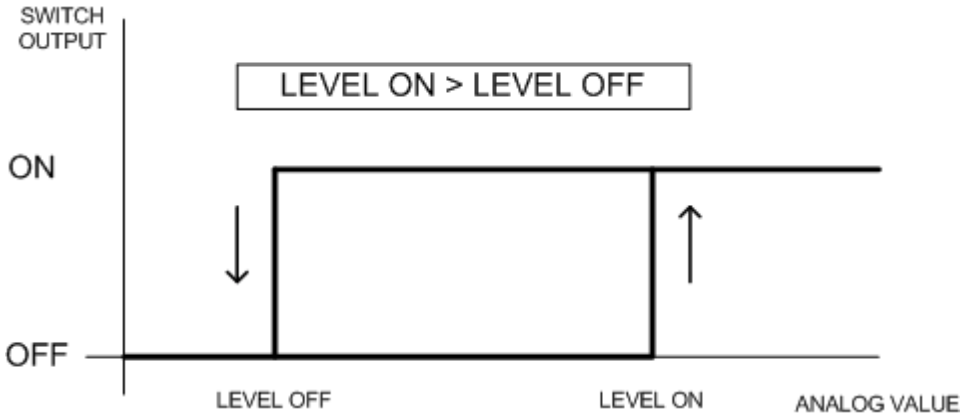

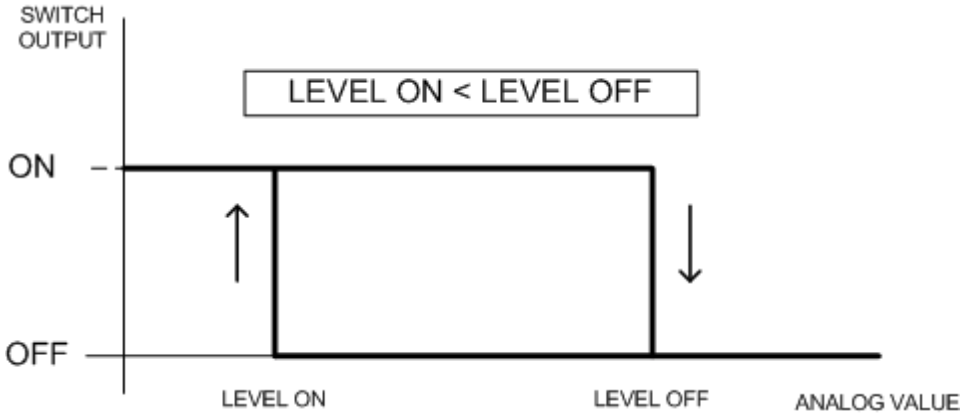

New setpoints:
TempSwitch ON [-]
Threshhold level for switching on the binary output TempSwitch. This function is connected with controller's analog input 2.
Step: 1
Range: -100 .. 10000 [-]
TempSwitchOFF [-]
Threshhold level for switching off the binary output TempSwitch. This function is connected with controller's analog input 2.
Step: 1
Range: -100 .. 10000 [-]

- **Actually chosen language saved into clone**
- **Switching modes of generator connections based on parameter** - Unnecessary generator values are hidden according to chosen configuration in models IL-NT-MRS10..AMF25.

New setpoint:
ConnectionType **[3Ph4Wire / 3Ph3Wire / Split Ph / Mono Ph]**
Generator winding connection.
3Ph4Wire: STAR Connection, 3 phases and neutral - 4 wires,
Three phase “wye” measurement – 3PY, 3x CT‘s
3Ph3Wire: DELTA Connection, 3 Phase without neutral - 3 Wires,
Three phase “delta” measurement – 3PD, 3x CT‘s
Split Phase: DOUBLE DELTA Connection, Split Phase,
Single-phase measurement – 1PH, 1xCT

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Mono Phase: MONOPHASE,
Single-phase measurement – 1PH, 1x CT

- **Renamed setpoint** old setpoint "Nominal Volts" to **"NomVolts Ph-N"**
- **New setpoint "NomVolts Ph-Ph"**
- **New Timer functions -** Scheduled tasks per configuration for models IL-NT-MRS10..AMF25. In models without history is only one timer available.

AMF models new setpoint:
Timer1..2Function [No Func/TEST/TEST OnLd/MFail Blk/Mode OFF]

It is possible to choose out of 5 following Timer functions. Binary output Exerc Timer X is always activated when Timer is active regardless of chosen Timer function. Timer functions require controller running in AUT mode.

No Func: There is no any other function, but binary output Timer1..2 activation.
TEST: When this option is chosen then the Timer output is also internally connected to the Remote TEST binary input.
TEST OnLd: When this option is chosen then the Timer output is also internally connected to the Rem TEST OnLd binary input.
MFail Blk: When this option is chosen then the Timer output is also internally connected to the MainsFailBlock binary input.
Mode OFF: When this option is chosen then the Timer output is also internally connected to the Remote OFF binary input.

MRS models new setpoint:
***Timer1..2Function [No Func/TEST/TEST OnLd/MFail Blk/Mode OFF]**

It is possible to choose out of 3 following Timer functions. Binary output Exerc Timer X is always activated when Timer is active regardless of chosen Timer function. Timer functions require controller running in AUT mode.

No Func: There is no any other function, but binary output Timer1..2 activation.
Auto Run: When this option is chosen then the Timer output is also internally connected to the Remote start binary input.
Mode OFF: When this option is chosen then the Timer output is also internally connected to the Remote OFF binary input.

- **Support for hebrew font**
- **DiagData** value implemented for ComAp dignostics purposes
- **Unified latin fonts of texts in chinese language**
- **New available dictionaries and updated older dictionaries – German, Spain, French, Hebrew, Chinese, Italian, Niederland, Portuguese and Russian**
- **New context helps** for setpoints, binary inputs / outputs and values **in LiteEdit**
- **Optional size of history** based on configuration of additional peripheries like ECU or extension modules. Unnecessary columns are hidden in history.
- **Running Hours switching improved**
  Running Hours switching between ECU and controller in case of ECU value is not valid has been improved.

Repairs

- **Iveco Nef & Kursor / ECU Running Hours reading problem fixed**
  Problem with ECU Running Hours reading for Iveco Nef & Kursor engines has been fixed.

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- **ScaniaS6AuxII / ECU DLN1 frame not sending problem fixed**
  Problem with ECU DLN1 frame not sending for ScaniaS6AuxII engine has been fixed.
- **Added BO Exerc Timer 1** to applications MRS10, MRS11 a AMF20

8. Main changes in IL-NT-1.4

New features

- Improved characteristics of electrical measurement
- Changed range of setpoint Nominal Power to 1..5000 [kW]
- Text length of parameters in setpoints screen of controller has been enlarged to 9 characters
- Changes in texts:

Old Text	New Text	Note
ProtectHoldoff	ProtectHoldOff	
Fwd Return Del	Transfer Del	
ValidFlt	Start Del	In Timer (default measuring screen)
ValidFlt	MainsFlt	State of electrical automat
RetTransf	ReturnDel	
FwRet Brk	Trans Del	
Maintenance	WrnMaintenance	Text of setpoint
Sd StartFail	Sd Start Fail	
AutoMains Fail	AMF Settings	
FltResGoToMAN	Reset To MAN	
SD RPMMeasFail	Sd RPMMeasFail	
Diagnostic ECU	ECU State	
YellowLamp ECU	ECU YellowLamp	
Red Lamp ECU	ECU RedLamp	
WaitToStrt ECU	ECU WaitToStrt	
Gen-set Start	Manual Start	
Gen-set Stop	Manual Stop	
MainsFailStart	AMF Start	
MainsFail Stop	AMF Stop	
Gen Rem Start	Remote Start	
Gen Rem Stop	Remote Stop	
-	Test Start	Start of gen-set in case of controller mode switched to TEST
Gen-set Stop	Gen-set Stop	Stop in case of shutdown
Led MCB fdb	-	Removed
Led GCB gr	Led GCB Green	
Led MCB gr	Led MCB Green	
Led GEN gr	Led Gen Green	
Led GEN red	Led Gen Red	
Led MAINS gr	Led MainsGreen	
Led MAINS red	Led Mains Red	
Gen freq	Gen Freq	
Mains freq	Mains Freq	

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Gen Load char	Gen Load Char	
Ig nom	Ig Nom	
Under limit	Under Limit	
Over limit	Over Limit	
Over limit+Fls	Over Limit+Fls	
No protection	No Protection	
Sensor fail	Sensor Fail	
MCB close	MCB Close	
GCB open	GCB Open	
Fuel level	Fuel Level	
Fault reset	Fault Reset	
User mode	User Mode	

9. Main changes in IL-NT-1.3

New features

- Improved characteristics of electrical measurement
- Support for COM terminal at analog inputs – support of HW version 1.3
- Support of dual port communication modules, such as IL-NT RS232+RS485
- Switchable User Interface in controller – two modes “User” and “Engineer”
- Register oriented modbus added
- Both Stop button and Stop Button LBI has unified function – stop command is repeated each 2 seconds while button is pressed/switched on.
- Unified function of Start button and Start Button LBI. While pressing button/switch on LBI, first command to start/prestart is issued immediately, Idle can be skipped after 2 seconds. Prestart can’t be skipped. Only edge of signal is evaluated
- Newly is in engines driven by TSC1 frame altered value of bits 5-8 – as 0xFF
- MAN engines – support for reading of diagnostic messages from multiple sources
- Statistics can be changed only after password is filled in
- Changed default curve for VDO 50-150
- Alarm “RPM Meas Fail” renamed to “SD RPMMeasFail”
- Updated chinese and spanish dictionaries
- Range of “AI1-3 Del” and “IOM AI1-3 Del” setpoints extended to 900s
- When IG-IOM/IGS-PTM module is not configured, relevant values and setpoints are hidden in controller
- Range of “Maintenance” setpoint lowered to 0..10000 hours
- When “Maintenance” is setted to value 10000, maintenance counter is hidden in controller and does not count. Default value is 9999 hours
- “Fuel Pump ON”, “Fuel Pump OFF” setpoints moved to group Engine Params
- Run Hours value is counted and displayed with one decimal
- If the “Run Hours” value is negative number or goes over the range, it is changed to 0 and counter continues
- SMS/Active calls setpoint changed
- New LBO “AI Mains Fail”
- Range of “EmergStart Del” extended to 6000s
- Mode of controller in history is displayed as text (OFF/MAN/AUT/TEST)
- IG-IOM/IGS-PTM module relevant setpoints moved to common group “Extension I/O”
- At models MRS10-AMF25 changed alarm “Wrn Batt Low” to “Wrn Batt Volt” due to new setpoimt “Batt Overvolt”
- Renamed BOUT “AL BatteryFlat” in models MRS10-AMF25 to “AL BatteryFail”

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- Changed behavior of “ECU SpeedAdj” setpoint: For value “0%” it request engine speed equal to 90% on nominal speed. For value 50% it request 100% of nom. speed. And for 100% it request 110% of engine nominal speed
- Changed order of columns in history
- Unified behavior of LBI “Access Lock” with InteliLite Classic controllers, Access Lock block only change of mode and change of setpoints.
- New setpoints “Batt Overvolt”, “Cooling Speed”, “COM2 Mode”, “ModemIniString”, “ModbusComSpeed”
- Changed list of options at setpoint “COM1 mode”

Repairs

- Support of portugese and other west europe fonts improved
- Wrong name of setpoint IOM AI3 Sd changed to IOM AI2 Sd
- IG-IOM/IGS-PTM bargraphs had wrong range – fixed
- Part of events in history in models MRS15 and MRS16 were wrongly interpreted – fixed
- In MRS11 and MRS16 models controller did not colesd GCB in AUT mode –fixed
- Fixed evaluation of protections of binary inputs at IG-IOM/IGS-PTM.

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