ComAp
The heart of smart control

InteliLite Telecom

Controller for Telecom application

SW version 1.3.0

New Features List

1 General information

1.1 Version information

> IMPORTANT: HW version 1.7 supports only FW versions 1.3 and higher.

The firmware IL-NT-TLC is based on the standard controller firmware IL-NTAMF25 version 2.2. It contains all its features plus adds several new properties dedicated for AC telecom application. Please refer to the IL-NT-AMF-2.2 Reference Guide for further details on standard controller features and abstract part of this document on InteliLite Telecom new features detailed description.

InteliLite Telecom controller features also improvements in hardware, which allows accommodating all the software enhancements and leaves open space for the future modifications.

Additionally, D+ terminal measurement was improved to battery terminal measurement. Precision is ±0.1 V and voltage range ±65 V, as it is intended to be used for auxiliary battery bank voltage sensing.

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 1.3.0

2.1 New features

▶ Improvement of battery voltage measurement

- D+ voltage measurement was improved to be suitable for battery voltage measurement to both polarities
- D+ input was renamed to Battery input (Batt)
- Setpoint D+ Function was removed
- D+ function was removed, e.g. Batt input is not used for started and running engine evaluation and for charging fail alarm
- Range of Batt input is ±65 V
- New setpoint Battery Measur was added

Battery Measur

Setpoint group	Battery Charge	Related FW	1.3.0
Default value	ENABLED	Related applications	TLC
Range [units]	ENABLED / Disabled [-]		
Description			

This setpoint enables or disables battery measurement on input Batt.

ENABLED	Batt input is used for measurement of battery voltage. Voltage from this input is used for battery charge function.
DISABLED	Batt input is not used for measurement of battery voltage.

▶ Support of new HW version of IL-NT GPRS

- HW version with simcom 800 is supported

▶ Configurable analog input 1

- It is possible to use analog input 1 for different values then Oil Pressure
- There is new setpoint which defines if analog input 1 should be used for oil pressure or not
- New setpoint Oil Pressure was added
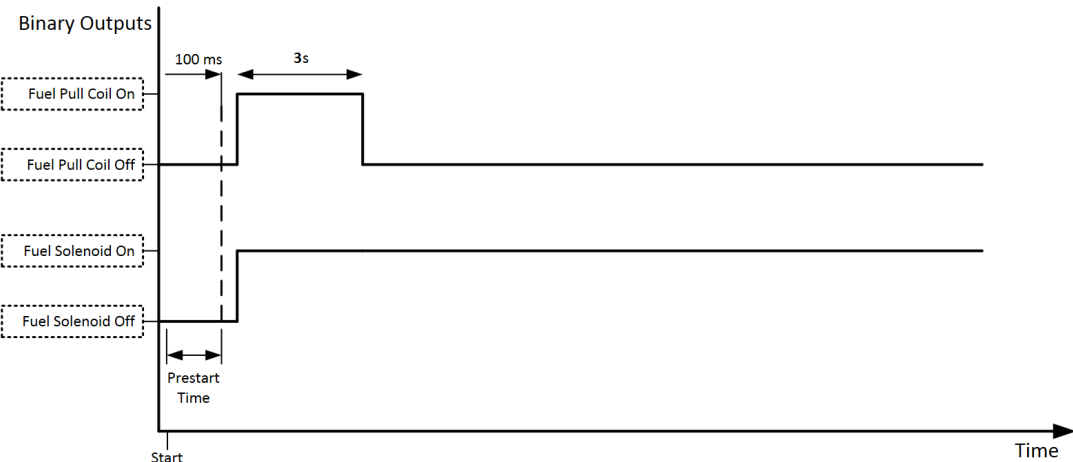
Oil Pressure

Setpoint group	Engine Params	Related FW	1.3.0
Default value	AIN1	Related applications	TLC
Range [units]	NONE / AIN1 [-]		
Description			

This setpoint defines if analog input 1 is used for Oil Pressure or not.

NONE	Analog input 1 is not used for Oil Pressure. Value from AIN1 isnot used for Oil Pressure alarm and for engine running evaluation. AIN1 can be used for different analog values.
AIN1	Analog input 1 is used for Oil Pressure. Value from AIN1 is used for Oil Pressure alarm and for engine running evaluation.

Behavior with ECU

► ECU with oil pressure value - Oil pressure is taken from ECU. AIN1 is free and can be configur like something different. Setpoint Oil Pressure is forced to None value.

► ECU without oil pressure value - behaviour is defined only via setpoint Oil Pressure.

► No ECU - behaviour is defined only via setpoint Oil Pressure.

3 Changes in the version 1.2.0

3.1 New features

▶ 3 levels of password

- Controller has newly 3 levels of password
- All passwords can be adjusted via LiteEdit or via controller
  - via LiteEdit: ribbon Controller - Change password... - choose level of required password for change.
  - via controller: from any measurement screen press Page button - choose group password, which is usually the first and press Enter button - choose the level of required password for change.

▶ LT version

- Added support of Low Temperature HW modification of the InteliLite Telecom controllers (up to - 40°C).

▶ New logical binary output FUEL PULL COIL

Full Pull Coil

Related FW	1.3.0	Related applications	TLC
Description			

This LBO is designed for fuel solenoids which need a pulse activation for opening. There is a 3 seconds long pulse, which is activated at the same moment as LBO FUEL SOLENOID. Please see the picture below.

Image 3.1 Fuel Pull Coil

► Extended fuel management measuring

- Extended fuel management measuring is supported with additional plug-in module IL-NT-FCM.

- setpoint *Flowmeter1 Ppl*

Flowmeter1 Ppl

Setpoint group	Fuel Mngmt	Related FW	1.3.0
Default value	10 ppl	Related applications	TLC
Range [units]	10..50 000 ppl		
Description			
The setpoint defines the number of pulses (received on the first input of IL-NT-FCM) for 1 litre of fuel from the Flowmeter 1 (main flowmeter). After receiving of adjusted pulses, the value of *Flowmeter 1* is increase by 1.			

- setpoint *Flowmeter2 Ppl*

Flowmeter2 Ppl

Setpoint group	Fuel Mngmt	Related FW	1.3.0
Default value	10 ppl	Related applications	TLC
Range [units]	10..50 000 ppl		
Description			
The setpoint defines the number of pulses (received on the second input of IL-NT-FCM) for 1 litre of fuel from Flowmeter 2 (secondary flowmeter). After receiving of adjusted pulses, the value of *Flowmeter 2* is increase by 1.			

- value *Flowmeter 1*

Flowmeter 1

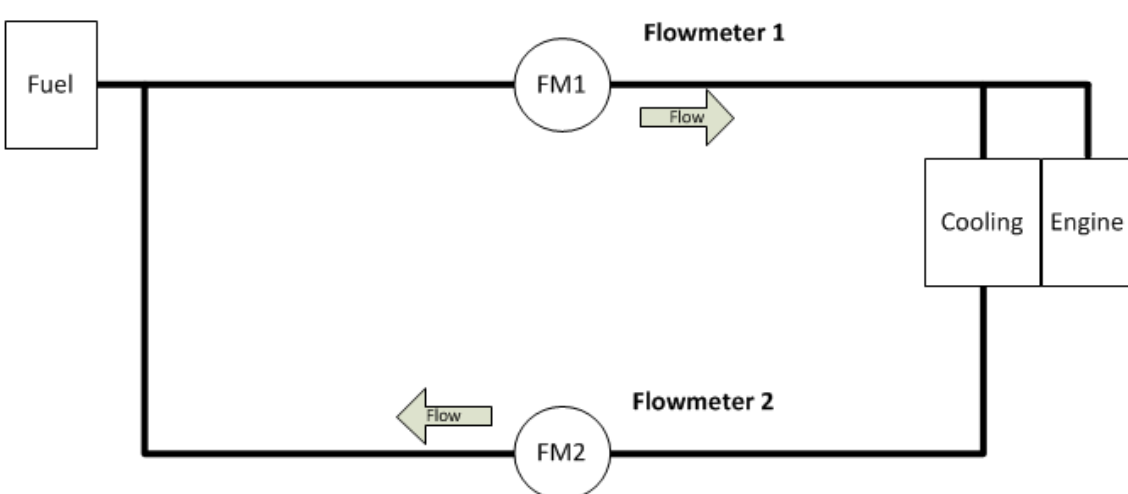| Value group	Statistics	Related FW	1.3.0
Resolution [units]	1 [l]	Related applications	TLC
Description			
The value shows counted litres from Flowmeter 1. Liters are counting from beginning (plug-in module is inserted) until reset of counter via LiteEdit.			

- value *Flowmeter 2*

Flowmeter 2

| Value group	Statistics	Related FW	1.3.0
Resolution [units]	1 [l]	Related applications	TLC
Description			
The value shows counted litres from Flowmeter 2. Liters are counting from beginning (plug-in module is inserted) until reset of counter via LiteEdit.			

- value *TotFuelConsum*

TotFuelConsum

Value group	Statistics	Related FW	1.3.0
Resolution [units]	1 [l]	Related applications	TLC
Description			

The value *TotFuelConsum* was modified according to new requirements of extended fuel management measuring. Priority of sources of fuel consumption are now: IL-NT-FCM module, ECU and Analog input.

In case of usage of IL-NT-FCM module value is counted according to the formula:

TotFuelConsum = Flowmeter 1 - Flowmeter 2

Image 3.2 Application with both flowmeters

When the controller is powered on the value of *TotFuelConsum* is copied to value *Flowmeter 1*. When the value of *TotFuleConsum* is reset via LiteEdite, both values *Flowmeter 1* and *Flowmeter 2* are reset. When the value *TotFleuConsum* is set via LiteEdit, this value is copied to the value *Flowmeter 1* and the value *Flowmeter 2* is reset.

Note: Any possible small difference between values Flowmeter 1 and Flowmeter 2 in comparison with TotFuleConsum is caused by different rounding of these values.

- Controller contains new screen with values *TotFuelConsum* , *Flowmeter 1* and *Flowmeter 2*. The screen is visible only when the IL-NT-FCM module is plugged-in.
- In case of application with no reverse flow it is possible to use the Flowmeter 1 input only.
- IL-NT FCM module
  - Through this card controller can use extended fuel management measuring.
  - The module has to be configured in LiteEdit software.
  - Module inputs can be set for voltage or open collector input signal.
    - For switching between voltage and open collctor input signal use jumpers P1 and P2.
    - For voltage signal open jumpers.
    - For open collector signal close jumper.

- Jumper P1 is for input 1.
- Jumper P2 is for input 2.
- Wiring
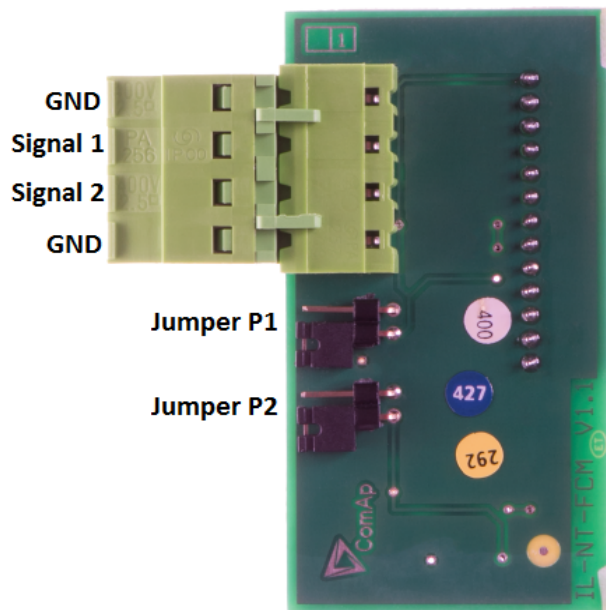
- Technical data

Pulse input	Max 2 kHz, input voltage 9 to 27 Vpp
Storage temperature	- 40 °C to + 80 °C
Operating temperature	- 30 °C to + 70 °C

▶ New logical binary outputs PREHEATING and AFTERHEATING

Preheating, Afterheating

Related FW	1.3.0	Related applications	TLC
Description			
The behavior of both LBOs depends on temperature. LBOs are activated only when the temperature is lower than 10°C.			

- setpoint *TemperatureSel*

TemperatureSel

Setpoint group	Engine Params	Related FW	1.3.0
Default value	OFF	Related applications	TLC
Range [units]	OFF, AIN2, AIN3, AIO1, AIO2, AIO3, AIO4		
Description			
The setpoint *TemperatureSel* is used for selecting of the source for temperature measurement which is further used for counting of time of activation of LBOs PREHEATING and AFTERHEATING.			

- setpoint *PreHeatingTime*

PreHeatingTime

Setpoint group	Engine Params	Related FW	1.3.0
Default value	0,0	Related applications	TLC
Range [units]	0,0..10,0 s/°C		
Description			
The setpoint *PreHeatingTime* adjusts dependence between temperature and time of activation of LBO PREHEATING .			

- setpoint *AfterHeatTime*

AfterHeatTime

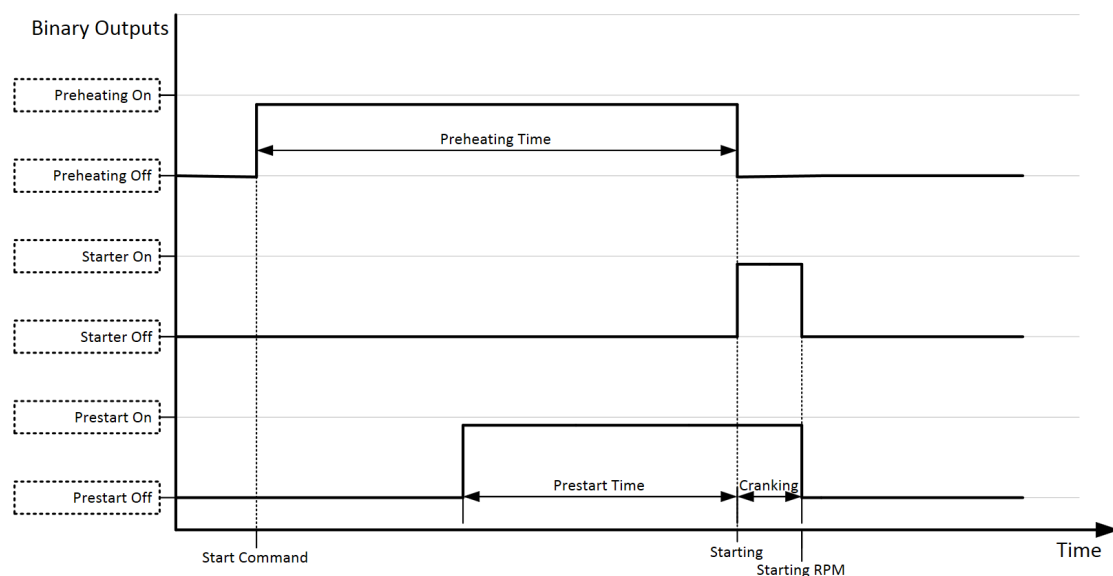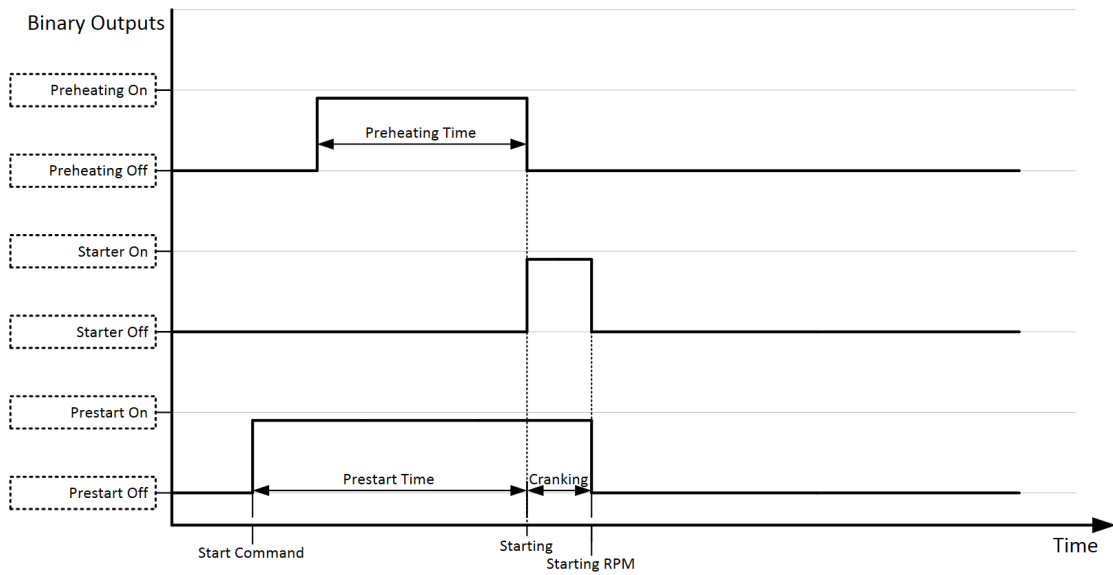| Setpoint group	Engine Params	Related FW	1.3.0
Default value	0,0	Related applications	TLC
Range [units]	0,0..10,0 s/°C		
Description			
The setpoint *AfterHeatTime* adjusts dependence between temperature and time of deactivation of LBO AFTERHEATING			

Image 3.3 Preheating longer than Prestart
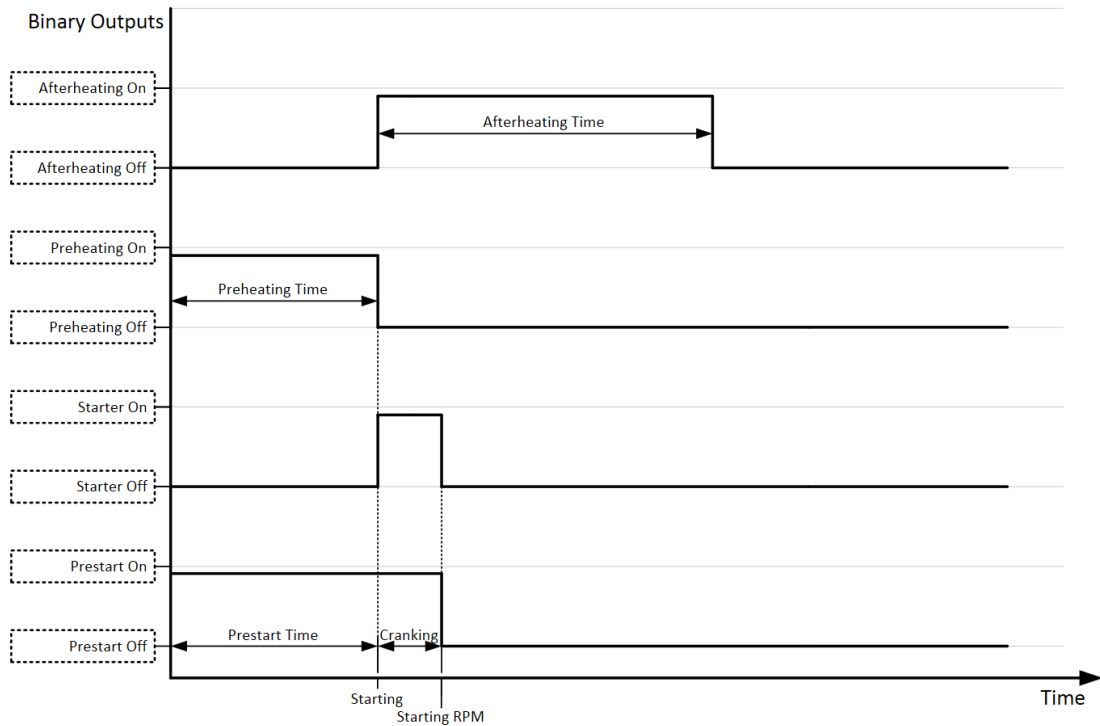
Image 3.4 Preheting shorter than Prestart

Image 3.5 Afterheating
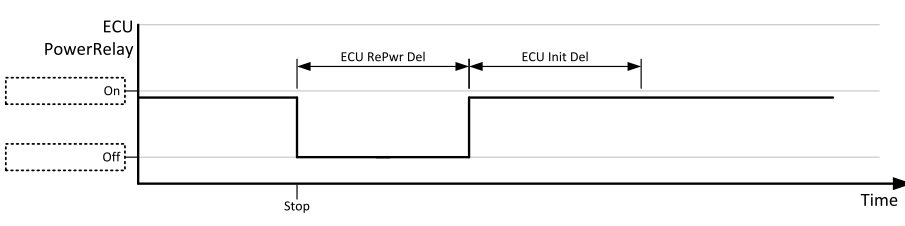
▶ Modification of logical binary output ECU POWER RELAY

ECU PowerRelay

Related FW	1.3.0	Related applications	TLC
Description			
Function of LBO ECU POWERRELAY was modified due to LBOs PREHEATING and AFTERHEATING - in case that ECU is used, controller has to know the value of temperature for correct counting of LBOs timers at the moment of starting command.			

- setpoint *ECU RePwr Del*

ECU RePwr Del

Setpoint group	Engine Params	Related FW	1.3.0
Default value	0 s	Related applications	TLC
Range [units]	0..600 s		
Description			

The setpoint of *ECU RePwr Del* adjusts the time delay for re-powering of the ECU. After elapsing of the *ECU RePwr Del* the LBO LCU POWERRELAY activates again.

Note: Setting to 0 deactivates the function of re-powering.

Image 3.6 ECU PowerRelay

- setpoint *ECU Init Del*

ECU Init Del

Setpoint group	Engine Params	Related FW	1.3.0
Default value	0 s	Related applications	TLC
Range [units]	0..60 s		
Description			

The setpoint of ECU Init Del adjusts the time needed for initialization of the engine's ECU. It activates in the same time as LBO ECU Power Relay. During this time all Shutdown and Warning lamps received from ECU are ignored.

Note: Setting to 0 deactivates the initialization delay of the ECU. All received alarms are announced immediately.

4 Changes in the version 1.1.0

4.1 New features

▶ Dummy Load Management function added: 5 steps of dummy load is controlled by LBO to maintain the genset running loaded within its optimal range. If the real load decreases, new dummy load is connected, if the load raises and any dummy load is connected, than the controller will automatically disconnect it.

- New LBOs added:
  DUMMY LOAD 1
  DUMMY LOAD 2
  DUMMY LOAD 3
  DUMMY LOAD 4
  DUMMY LOAD 5

- New setpoints added ("*Engine Params*" group):
  "*Optimal Power*" : default value: 130 kW; range: 0 .. 32 000 [kW]
  "*DummyLoad Step*" : default value: 10 kW; range: 0 .. 32 000 [kW]
  "*DummyLoad Del*" : default value: 60 s; range: 0 .. 600 [s]
  "*Dummy Drop Lvl*" : default value: 180 kW; range: 0 .. 32 000 [kW]
  "*Dummy Drop Del*" : default value: 20 s; range: 0 .. 600 [s]

- New controllers screen showing delay time counter for each output added:
  This CU screen will show 6 values indicating that any of 5 LBO (DUMMY LOAD 1 .. 5) is going to change its status once the "*DummyLoad Del*" will count down to zero. This screen and timers information is available only on controllers LCD. The screen is located above "Binary Outputs" screen

Function description:

Generator is requested to work within predefined range of power to prolong its lifetime. Thus the 5 step dummy load can be connected to increase the load to keep genset be running within the optimal load range. The optimal load range results from setpoints "*Optimal Power*" and "*DummyLoad Step*" and following formula:

("*Optimal Power*" - "*DummyLoad Step*") < Optimal Load Range < ("*Optimal Power*" - "*DummyLoad Step*")

where:

"*Optimal Load Range*" = Load range interval where the generator should be maintained to prolong its lifetime. Within this interval, no dummy load is connected or disconnected from the generator to optimize its load level.

"*DummyLoad Step*" = The size of load that is connected to the generator by each Dummy Load LBO. Every Dummy Load LBO controls the same portion of load. For 10kW step is maximal dummy load size 50kW (5 steps by 10kW).

"*Optimal Power*" = Centre of the Optimal Load Range interval. For "*Optimal Power*" 100kW and "*DummyLoad Step*" 10kW is the Optimal Load Range 90kW-110kW.

"*DummyLoad Del*" is timing activation of Dummy Load 1 .. 5 LBOs.

If the generators load is too low, so to reach the optimal load range is necessary to connect e.g. 3 steps of load (30kw if step =10kW), then the controller will count down "DummyLoad Del", then Dummy Load 1 LBO is closed and controllers starts counting down "DummyLoad Del" again for Dummy Load 2 LBO and after its closing it starts counting down again for Dummy Load 3 LBO.

If the generators load is above optimal load level, controller will start counting down the "DummyLoad Del" before highest activated Dummy Load LBO (Dummy Load with highest index) is deactivated to decrease the generators load. If it is not enough and the load is still above optimal load range, controller will start counting down "DummyLoad Del" again and then it deactivates another Dummy Load LBO. This way it continues until the generator is still above the optimal load range.

If the load overcomes "Dummy Drop Lvl", the controller will start counting down the "Dummy Drop Del". Then all Dummy Load LBOs are deactivated at once.

Dummy Load Control function is active only when the generator is loaded (GCB closed, engine running, AUT/MAN mode) so all Dummy Load LBOs are deactivated until the engine will reach state Loaded.

5 Changes in the version 1.0.0

5.1 New features

▶ Auxiliary battery charging management

- Charging and cycling timers

- Improved D+ function setpoint

- Air-condition temperature switch

- Statistics for auxiliary battery run time and number of cycles

▶ Statistics for fuel consumption evaluation

- Periodic fuel consumption

- Total average fuel consumption

- Time till fuel tank is empty

▶ 3ph mains and 1ph gen-set cooperation improved

- setpoint Mains OK On was added

- Functionality of setpoint ConnectionType in Basic Settings was extended

▶ Support for backup cranking battery

- Battery B binary output added

▶ Possibility to switch LCD backlight off

- setpoint Backlight Time was added

▶ Support for IL-NT AIO plug-in module was added

- adds additional 4x analog input, 1x analog output

▶ Automatic configuration for IB-Lite (Ethernet) module

▶ Added support for SNMPv1 protocol

▶ Optimization of the LCD display screen texts

5.2 Battery charging management - basic principals

Battery charging management is the functionality which was designed to allow the controller to operate the gen-set together with the auxiliary telecom battery. Following example describes the typical application:

If the battery charging management is active, start of the gen-set after mains fail is delayed by the time defined by the user or until certain condition is met (for example the voltage on the telecom battery drops under certain level or dedicated LBI is activated). It is expected, that the load during that time is powered by the telecom battery, not by the gen-set.

Once the controller evaluates the need to start the gen-set i.e. for example battery voltage drops, it is immediately started, connected to the load and at the same time charging cycle of the telecom battery is performed. Number of the charge/discharge cycles during the mains fail situation as well as the time for how long gen-set is running is modifiable by the user.

5.2.1 How to activate battery charging management function

InteliLite Telecom is by default delivered with battery charging management function switched off. In order to activate it all these conditions has to be met:

1. Batt Meas is configured as ENABLED or LBI ChrgStart is configured or StartLimit setpoint > 0
2. Setpoint AMF Settings => Operation Mode is set as AMF or MRS
3. Gen-set controller must operate in AUT mode

Only when all three conditions are met, InteliTelecom controller will initiate battery charging function and related timer/counters in the "Battery Charge" group of setpoints.

Add1) in case that neither of these is configured, controller will operate as in standard AMF, MRS or DualAMF mode

Add2) setting MASTER or SLAVE (DualAMF operation mode) will disable battery charging management function

Add3) changing controller mode from AUT and back during charging operation will cause re-initiation of all related timers/counters

5.2.2 Telecom battery connection
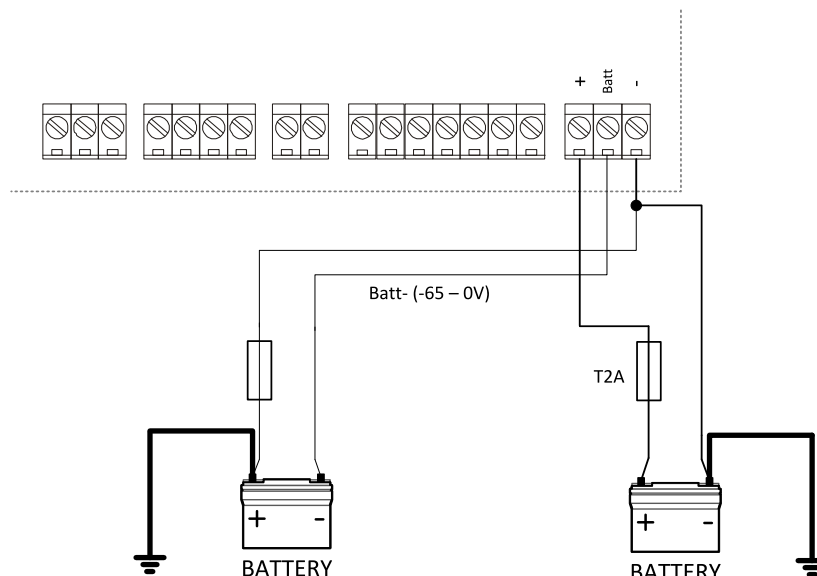
Battery with + grounded

Image 5.1 InteliLite Telecom Batt+ connection for Telecom battery measurement
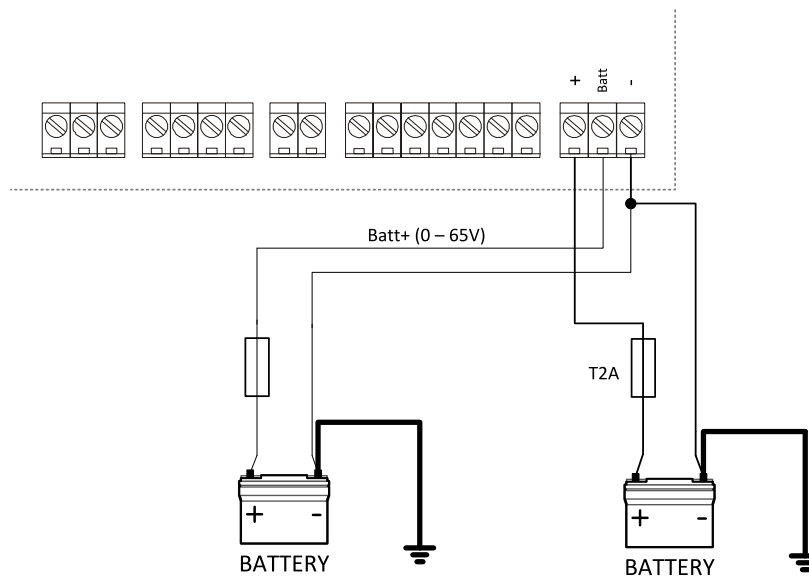
Battery with - grounded

Image 5.2 InteliLite Telecom Batt- connection for Telecom battery measurement

5.3 Battery charging management in MRS operation mode

MRS operation mode is very similar to the AMF operation, except the mains fail part is missing. As soon as gen-set controller is switched to AUT mode, it will start to evaluate all the conditions. Gen-set will start and stop based on the auxiliary battery voltage level, start limit timer or Air-condition temperature switch.
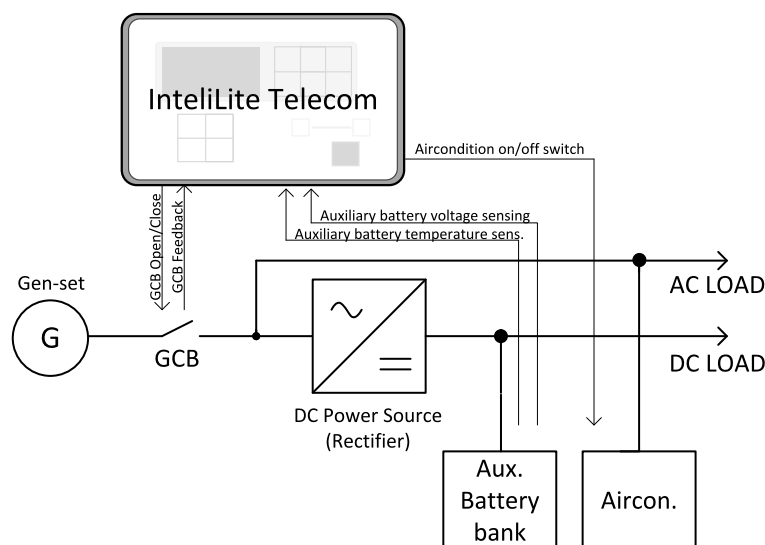

Image 5.3 InteliLite Telecom MRS application example

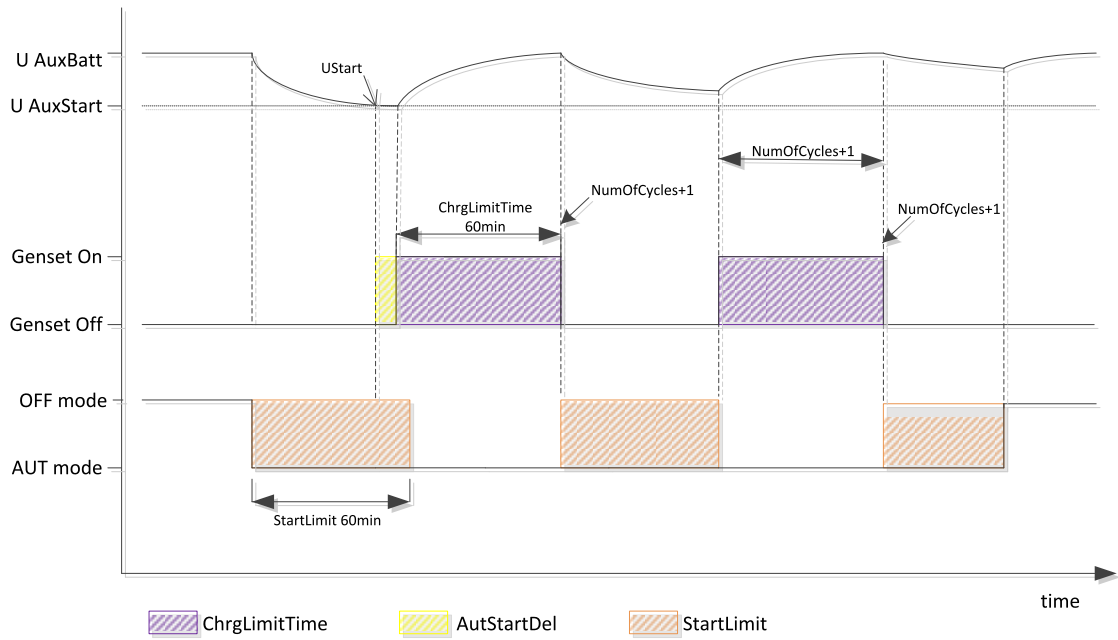# 5.3.1 MRS operation example and flowchart

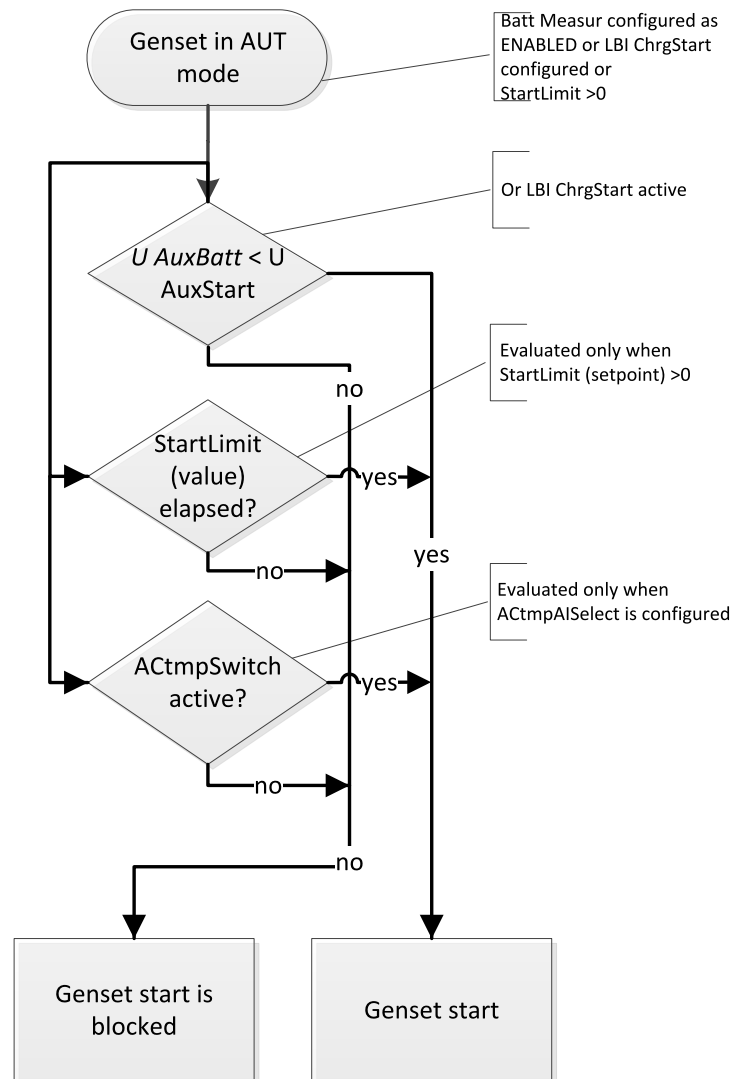
Image 5.4 MRS operation mode example

Image 5.5 MRS operation flowchart - simplified

5.4 Battery charging management in AMF operation mode

See image below for application example. In case of mains fail situation, gen-set will not start immediately. In order to automatically start the gen-set one of this condition has to be met:

a. **U AuxBatt** – measured voltage on the Batt terminal has to be below the value of the setpoint "U AuxStart" and stay below for the time set by setpoint "AutStartDel". This scenario describes the situation, when the voltage of the auxiliary telecom battery is measured by InteliTelecom controller directly. There is also possibility to use binary input ChrgStart in case that third party voltage sensing is used.

b. **StartLimit** (value) elapses – "StartLimit setpoint can be found in the Battery Charge setpoint group. It starts to count down as soon as mains fail is evaluated. This number describes in minutes for how long the gen-set start will be delayed. Setting "0" minutes will turn this counter off.

c. **ACtmpSwitchON/OFF** – related setpoints for air-condition temperature switch can be found in the "Engine Params" setpoint group. It allows using one analog input (temperature measurement) to start the genset, even if auxiliary telecom battery has still enough power. This is useful when AC air-condition is used and has to be powered up.

Note: *All conditions are evaluated simultaneously*
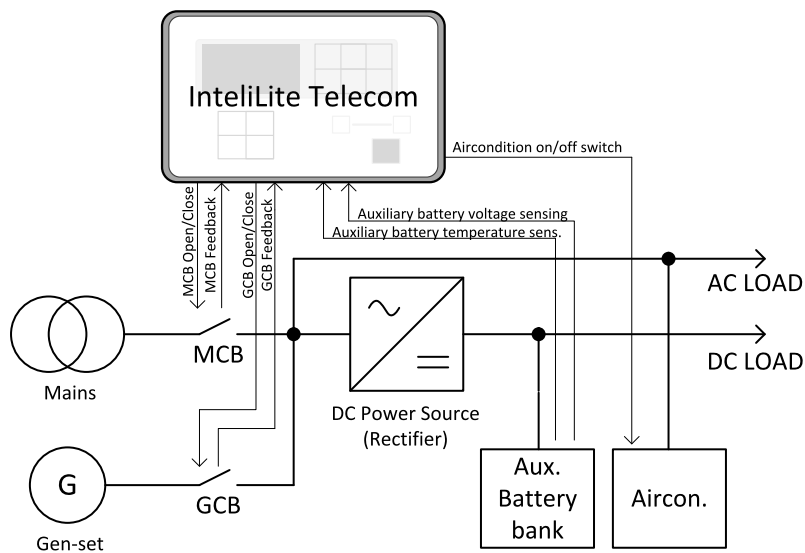
Image 5.6 InteliLite Telecom AMF aplication example

5.4.1 AMF operation example and flowchart

Image 5.7 AMF mode operation example

Genset in AUT mode

Batt Measur configured as ENABLED or LBI ChrgStart configured or StartLimit >0

Mains Fail
+
EmergStart Del elapsed

Or LBI ChrgStart active

U AuxBatt < U AuxStart

no

StartLimit (value) elapsed?

yes

no

yes

Evaluated only when StartLimit (setpoint) >0

ACtmpSwitch active?

yes

no

Evaluated only when ACtmpAISelect is configured

no

Genset AMF start is blocked

Genset AMF start

Image 5.8 AMF operation flowchart - simplified

5.5 Version related setpoints, values and binary I/O

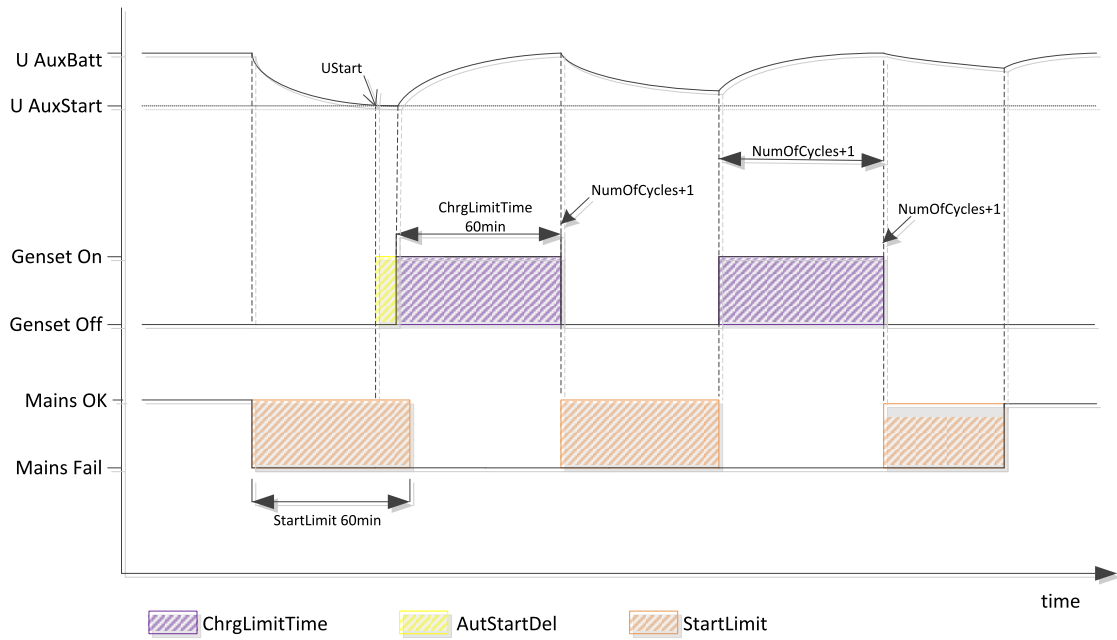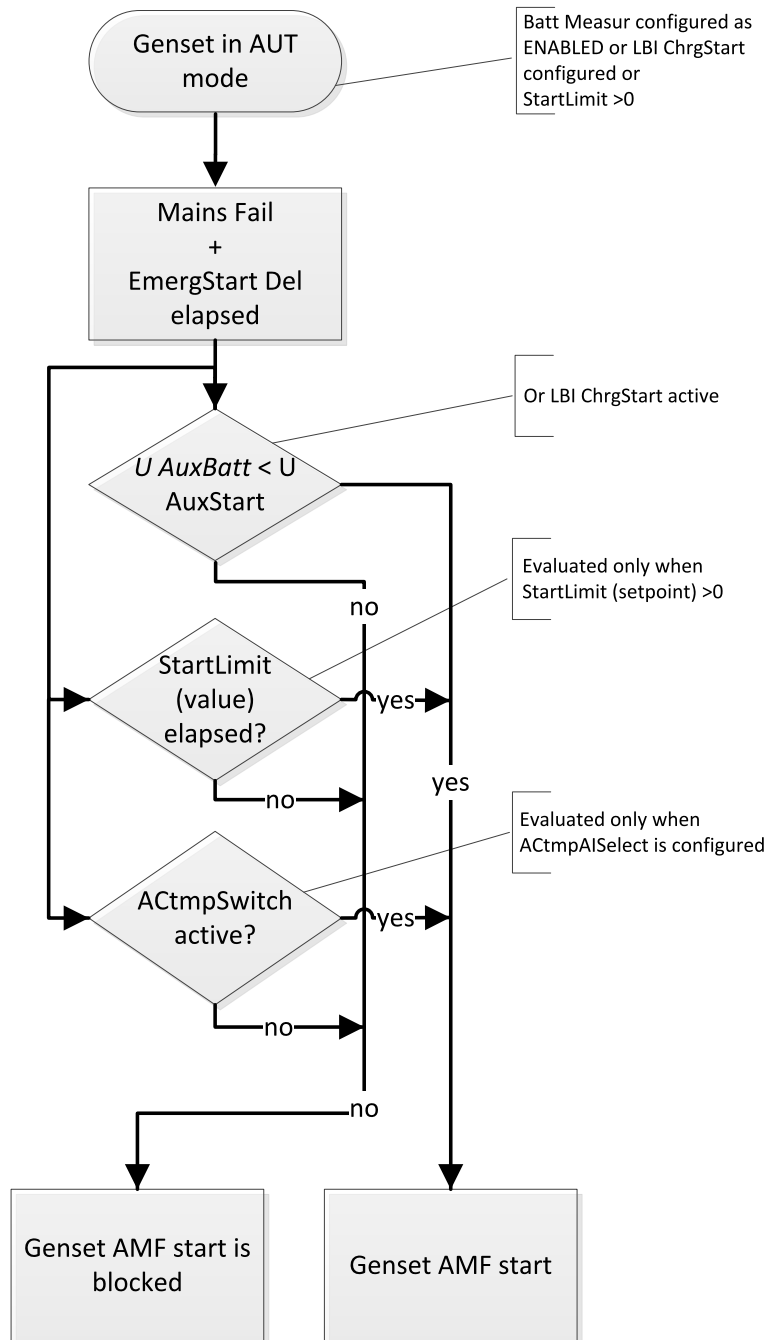### Setpoint ACtmpAISelect

Setpoint group	Engine Params	Related FW	1.3.0
Default value	OFF	Related applications	AMF, MRS
Range [units]	OFF, AI3, AIO1, AIO2, AIO3, AIO4		
Description			

Defines which analog input will be used for ACtmpSwitchON / ACtmpSwitchOFF evaluation.Make sure that AI3/AIOx is configured as "monitoring" in the configuration window of Liteedit.

Note: ACtmpSwitch (air-condition temperature switch) works only in battery charge management mode of the controller. See chapter Battery charging management for more details.

Setpoint ACtmpSwitchON

Setpoint group	Engine Params	Related FW	1.3.0
Default value	25	Related applications	AMF, MRS
Range [units]	-100 - 10000 [°C]		
Description			

Defines the temperature level when the binary output ACtmpSwitch will be activated and start the gen-set.

Gen-set is started only when the site is powered from telecom battery.

The purpose of this function is to start the AC air-condition and provide AC power to it when the temperature of the site (or battery bank) exceeds certain level.

Note: Note: ACtmpSwitch (air-condition temperature switch) works only in battery charge management mode of the controller. See chapter Battery charging management for more details.

Setpoint ACtmpSwitchOFF

Setpoint group	Engine Params	Related FW	1.3.0
Default value	23	Related applications	AMF, MRS
Range [units]	-100 - 10000 [°C]		
Description			

Defines on which temperature level binary output ACtmpSwitch will be de-activated.

Note: ACtmpSwitch (air-condition temperature switch) works only in battery charge management mode of the controller. See chapter Battery charging management for more details.

Setpoint U AuxStart

Setpoint group	Battery Charge	Related FW	1.3.0
Default value	44V	Related applications	AMF, MRS
Range [units]	0.0V - 70.0V		

Description

Set here the voltage level of telecom battery bank under which it is considered as depleted and charging process should be initiated.

Measured Batt value "U AuxBatt is compared with the setpoint "U AuxStart". Once the Batt voltage is below the level of "U AuxStart" and stays there "AutStartDel", controller issues a command to start the gen-set.

Setpoint AutStartDel

Setpoint group	Battery Charge	Related FW	1.3.0
Default value	10s	Related applications	AMF, MRS
Range [units]	0 - 600 [s]		

Description

Delay for "U AuxStart".

If Batt is used: Tells how long the measured auxiliary battery bank voltage has to stay below the U AuxStart.

If binary input "ChrgStart" is used: Tells how long the BI has to be active in order to be evaluated as active.

Setpoint StartLimit

Setpoint group	Battery Charge	Related FW	1.3.0
Default value	0	Related applications	AMF, MRS
Range [units]	0 - 2880 [min]		

Description

Defines how long the gen-set will be off at most between the charging cycles (or mains fail and the first genset start). In other words, it is the longest time the site will be powered from the auxiliary telecom battery.

Setting "0" will switch this function off -> gen-set will start on "U AuxStart" or binary input "ChrgStart" only.

Setting none zero values switch the controller to the battery charging mode.

Setpoint ChrgLimitTime

Setpoint group	Battery Charge	Related FW	1.3.0
Default value	60	Related applications	AMF, MRS
Range [units]	0 - 2880 [min]		

Description
Defines how long gen-set will be running when charging auxiliary battery. It starts counting when GCB is closed. After this timer elapses number of cycles is incremented.
Setting "0" will switch this timer off -> gen-set will start (after first telecom battery discharge) and run until mains returns (AMF application) or forever (MRS application).
Note: In case that both ChrgLimitTime and MaxChrgCycle is set to 0, ChrgLimitTime functionality has the priority

Setpoint MaxChrgCycles

Setpoint group	Battery Charge	Related FW	1.3.0
Default value	3	Related applications	AMF, MRS
Range [units]	0 - 99 [-]		

Description
Defines the number of cycles -> how many times gen-set will start/stop before is stays running.
Example: Setting "0" => controller will cycle the battery until mains returns (AMF mode) or indefinitely (MRS mode).
Example: Setting "1" => after mains fail controller will delay AMF start, until telecom battery voltage is low. Then it starts the genset and keeps running.
Example: Setting "2" => after mains fail controller will delay AMF start, until telecom battery voltage is low. Then it starts the genset and run it for ChargeLimitTime. After that genset is stopped. As soon as tel. battery is discharged, gen-set is started again and runs until mains return.

Setpoint Backlight Time

Setpoint group	Basic Settings	Related FW	1.3.0
Default value	15	Related applications	AMF, MRS
Range [units]	0 - 240 [min]		

Description
When this timer elapses the display backlight is switched off. To light the display back press any key on the controller front panel.
Alarm and Shut down events will also cause the display to switch on.
Setting "0" -> display will never switch off.

Setpoint ConnectionType

Setpoint group	Basic Settings	Related FW	1.3.0
Default value	OFF	Related applications	AMF, MRS
Range [units]	3Ph4Wire, 3Ph3Wire, Split Ph, Mono Ph, 3ph4W/1Ph		
Description			

New option 3ph4W/1Ph could be used when 3 phases voltage measurement on Mains side and 1phase voltage measurement on Generator side is required.

The protections, history records and displayed values will depend on ConnectionType and Mains Ok On settings.

Mains protections and history records are based on Phase to Phase voltage when:

ConnectionType: 3Ph4Wire, 3Ph3Wire or 3ph4W/1Ph

Mains Ok On: 3Ph CCW R

In all other cases the unit will evaluate Phase to Neutral voltage.

Generator protections and history records are based on Phase to Phase voltage when:

ConnectionType: 3Ph4Wire, 3Ph3Wire

In all other cases the unit will evaluate Phase to Neutral voltage.

Setpoint Mains OK On

Setpoint group	AMF Settings	Related FW	1.3.0
Default value	3Ph CCW R	Related applications	AMF, MRS
Range [units]	1Phase, 2Phase, 3PhAnyRot, 3Ph CCW R		
Description			

Evaluation whether mains is healthy is based on the parameter setting, which can take following values.

1Phase - It is enough if there is one phase within limits to evaluate Mains as healthy

2Phase - There have to be at least 2 phases within limits to evaluate Mains as healthy

3PhAnyRot - 3 phases have to be within limits and phases rotation is not evaluated

3Ph CCW R - 3 phases have to be within limits and phases have to be in proper order

Note: Mains Ok On parameter is valid only for Connection Type 3Ph3Wire or 3ph4W/1Ph.

Setpoint PerFuelConsRst

Setpoint group	Man Operations	Related FW	1.3.0
Default value	OFF	Related applications	AMF, MRS
Range [units]	ON, OFF [-]		
Description			

This setpoint is normally set to OFF. When this setpoint is changed to ON the PerFuelConsum value will reset to 0 and setpoint PerFuelConsRst automatically sets again to OFF.
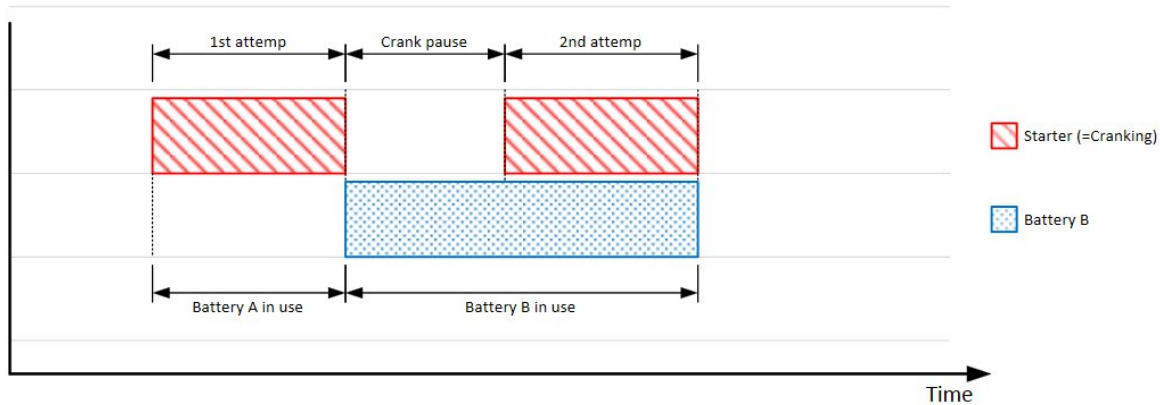
LBI ChrgStart

Related FW	1.3.0	Related applications	AMF, MRS
Description			

This input is used to inform the controller that the voltage of the auxiliary telecom battery bank is below desired level and charging process should be started.

It is meant to be used in case that voltage is not measured by the controller directly using the Batt terminal, but by using external equipment.

Note: See chapter Battery charging management for more details.

LBO ACtmpSwitch

Related FW	1.3.0	Related applications	AMF, MRS
Description			

Binary output is activated based on ACtmpSwitchOn level.

Binary output is deactivated based on ACtmpSwitchOFF level.

Note: ACtmpSwitch (air-condition temperature switch) works only in battery charge management mode of the controller. See chapter Battery charging management for more details.

LBO BatteryB

Related FW	1.3.0	Related applications	AMF, MRS
Description			

The "Battery B" binary output is used for switching between two battery sets within the individual start attempts.

Value U AuxBatt

Value group	Controller I/O	Related FW	1.3.0
Resolution [units]	0.1 [V]	**Related applications**	**AMF, MRS**
Description			

Shows Batt terminal voltage

Value AuxBatt Hours

Value group	Statistics	Related FW	1.3.0
Resolution [units]	0.1 [h]	Related applications	AMF, MRS
Description			

The statistics shows the time in hours for how long was the site powered from the auxiliary battery.

It is updated every 6 minutes.

Controller increment the value if all these conditions are met:

a) Active battery charging mode (see chapter battery charging management for more details

b) Mains fail (in AMF mode only)

c) GCB open

Value ChrgCycl Left

Value group	Battery Charge	Related FW	1.3.0
Resolution [units]	1 [-]	Related applications	AMF, MRS
Description			

The value shows the actual state of the counter MaxChrgCycles.

Value ChrgLimitTime

Value group	Battery Charge	Related FW	1.3.0
Resolution [units]	1 [min]	Related applications	AMF, MRS
Description			

The value shows the actual state of the timer ChrgLimitTime

Value NumOfCycles

Value group	Statistics	Related FW	1.3.0
Resolution [units]	1 [-]	Related applications	AMF, MRS
Description			

The statistics shows the number of full charge cycles of the auxiliary telecom battery.

The statistics is incremented when timer ChargeLimitTime elapses.

Value PerFuelConsum

Value group	Statistics	Related FW	1.3.0
Resolution [units]	0.1 [litres]	Related applications	AMF, MRS
Description			

Periodic Fuel Consumption. Provides the information in liters about the fuel consumption in certain period of time (from the last reset of the value).

To reset the value via controller screen go to Menu -> Man Operation -> PerFuelConsRst ON. The setpoint is password protected.

Note: It is not possible to switch this value to galons

Value StartLimit

Value group	Battery Charge	Related FW	1.3.0
Resolution [units]	1 [min]	Related applications	AMF, MRS
Description			

The value shows the actual state of the timer StartLimit.

Value TotAvgFlCons

Value group	Statistics	Related FW	1.3.0
Resolution [units]	0.1 [liter per hour]	Related applications	AMF, MRS
Description			

Provides the information about total average fuel consumption. It is calculated as follows:

1) If available from ECU -> TotAvgFlCons will display ECU data.

2) If not available from ECU -> calculated based on the AI3 fuel level analog input and running hours

Note: Note: It is not possible to switch this value to galons/h

Value TimeTillEmpty

Value group	Statistics	Related FW	1.3.0
Resolution [units]	0.1 [h]	Related applications	AMF, MRS
Description			

Shows the estimation in hours how long it takes until the fuel tank is depleted (shut down alarm is issued). Calculation is based on the actual fuel consumption, fuel level and the size of the fuel tank.

For proper function all these conditions has to be met:

▶ Fuel rate from ECU is received

▶ Valid fuel level from AI3 is received

▶ ACtmpAISelect must not be set as AI3

▶ FuelTankVolume has to be >0

In the opposite case you will see "#####" instead of valid number.

6 Related information

6.1 Available files

Firmware (*.mhx)
For InteliLite Telecom
IL-NT-TLC-1.2.0.mhx

Table 6.1 Available firmware

Archives (*.ail)
For InteliLite Telecom
IL-NT-TLC-1.2.0.ail

Table 6.2 Available archives

6.2 Overview of all available hardware

	InteliLite Telecom
Binary Inputs	7 / more available with optional plug-in card
Binary Outputs	7 / more available with optional plug-in card
Analog Inputs	3 / 7 with optional plug-in card
Analog Outputs	0 / 1 with optional plug-in card
Communications	CAN / Ethernet, GSM/SMS, GPRS, USB, RS232/485 (with optional plug-in card)

Table 6.3 Available hardware

6.3 Available related documentation

Documents	Description
InteliLite Telecom 1.0 – New Features List.pdf	Description of new features of InteliLite Telecom, typical application, new setpoints and values.
InteliLite Telecom 1.0 - Datasheet.pdf	Application overview, technical data, dimensions, terminals and mounting, available extensions modules, functions and protections, available certificates and standards
IL-NT-AMF-2.2 Reference Guide.pdf	General description of InteliLite AMF25 controller familly. Contains information about installation and related PC software as well as description of engine and generator control, list of setpoints, salues,logical binary inputs and logical binary output.

Table 6.4 Available documentation

7 Notes

7.1 Document history

Revision number	Related sw. version	Date	Author
4	1.3.0	6.12.2017	Michal Slavata
3	1.2.0	1.4.2016	Michal Slavata
2	1.1.0	10.11.2015	Petr Šťastný
1	1.0.0	21.1.2015	Tomáš Huček

7.2 Compatibility

HW version	Compatible FW version
1.7	Compatible with FW versions 1.3 and higher
1.6 and lower	Compatible with all FW versions (D+ changes from FW version 1.3 are not supported)