

InteliLite Telecom DC

Controller for DC Telecom application

SW version 1.6.0

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1 General information

1.1 Version information

Geo fencing function added.

1.2 Clarification of Notation

Note: *This type of paragraph calls the reader's attention to a notice or related theme.*

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

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

2 Changes in the version 1.6.0

2.1 New features

- Geo fencing function added
 - New setpoints added:
 - Geo-Fencing - Enable/Disable geo-fencing function
 - Home Latitude - adjusting home latitude
 - Home Longitude - adjusting home longitude
 - Fence1 Radius - position radius for Fence 1 protection
 - Fence 2 Radius - position radius for Fence 2 protection
 - Fence 1 Prot - type of Fence 1 protection
 - Fence 2 Prot - type of Fence 2 protection
 - Fence 1 Delay - delay for Fence 1 protection
 - Fence 2 Delay - delay for Fence 2 protection
 - New value added
 - Home Pos Dist - actual distance from home position
 - LBIs added
 - Home Positions - controller will use actual longitude and latitude for adjusting home position
 - GeoFencing Ena - LBI for enabling/disabling geo-fencing function

3 Changes in the version 1.5.0

3.1 New Features

- Added functionality of GPS positioning via IB-NT.
- Added new function: Force Charging Action. This function will allow users to Start and stop charging cycle with LBI. The added LBIs are:

Charging block

Description
If this LBI is active and controller is in AUTO mode, it will not start charging procedure even if conditions to do so are met.
IMPORTANT: Important: If the Gen-set is already in the middle of charging operation, Gen-set will be stopped.
<i>Note: Gen-set will not start at all as long as this LBI is active.</i>
<i>Note: Remote start/stop has higher priority and therefor if this LBI is active and remote start/stop gets activated, Gen-set will start running.</i>

Force Charge

Description
Controller will initiate charging procedure on receiving rising edge from this LBI. It will first go to Bulk procedure and if the battery voltage is high enough it will start Absorption procedure right away.
IMPORTANT: Pulse must be at least 100 ms long.

4 Changes in the version 1.4.0

4.1 New Features

- Support of 600 V systems
 - Range of following setpoint was extended to 850 V
 - *U Start, U Absorb Start, U Gen Nom, Gen >V Wrn and Gen >V Sd*
 - Range of following values was extended to 850 V
 - *Ugen, Ubatt, UbattComp, UbattCompTemp, UbattCompLoad, Uload and Uaux*

5 Changes in the version 1.3.0

5.1 New features

> Panel button functions

>> New functions for panel button

- GCB - GCB is closed/opened using the I/O button
- BCB - BCB is closed/opened using the I/O button
- LCB - LCB is closed/opened using the I/O button
- ACB - ACB is closed/opened using the I/O button
- All breakers - GCB, BCB, LCB, ACB are closed/opened using the I/O button

Note: Breaker control via panel button works only in MAN mode.

>> Removed functions:

- N/I Init
- CloseLoad
- Nominal/Idle

> Current measurement

>> I_{batt}

- measured all the time, if LBO BCB CLOSE/OPEN is not configured
- measured while BCB is closed, if LBO BCB CLOSE/OPEN is configured

>> I_{gen}

- measured when engine is running (starting with Idle time start and ending with Cooling time end), if LBO GCB CLOSE/OPEN is not configured
- measured while GCB is closed, if LBO GCB CLOSE/OPEN is configured

>> I_{load}

- measured all the time, if LBO LCB CLOSE/OPEN is not configured
- measured while LCB is closed, if LBO LCB CLOSE/OPEN is configured

>> I_{aux}

- measured all the time, if LBO ACB CLOSE/OPEN is not configured
- measured while ACB is closed, if LBO ACB CLOSE/OPEN is configured

- › Low Voltage Battery Disconnection (LVBD protection)
 - ›› This protection trips battery breaker when battery voltage is below adjusted limit
 - ›› Setpoint *LowVoltBattDis*

LowVoltBattDis

Setpoint group	Gener Protect	Related FW	1.6.0
Options	0,0 .. U Start [V]		
Default value	46,0 V	Alternative config	NO
Step	0,1 V		
Comm object	15759	Related applications	TLC-DC
Description			
<p>This setpoint adjusts the level for Low Voltage Battery Disconnection protection. When battery voltage (compensated) drops below this level, then <i>LVBD Del</i> starts countdown. After Countdown of this delay, battery breaker (BCB) is opened and stays open until:</p> <ul style="list-style-type: none"> • alarm is inactive and Fault Reset button is pressed, or • engine started and is ready to charge the battery (in this case it doesn't matter on state of alarm) <p>Note: Automatic re-close of breaker works only in AUT mode.</p> <p>Note: In MAN mode breaker can be closed manually after confirmation of alarm.</p>			

- ›› Setpoint *LVBD Del*

LVBD Del

Setpoint group	Gener Protect	Related FW	1.6.0
Options	0.. 3600 [s]		
Default value	30 s	Alternative config	NO
Step	1 s		
Comm object	15760	Related applications	TLC-DC
Description			
Delay for <i>LowVoltBattDis</i> protection.			

5.2 Repaired bugs

- › Control of GCB
 - ›› GCB is opened when cooling phase of generator starts

6 Changes in the version 1.2.0

6.1 New features

- > Logical binary outputs SPEED UP and SPEED DOWN for speed governors with binary control
 - » LBOs SPEED UP and SPEED DOWN

Speed Up

Related FW	1.6.0	Related applications	TLC-DC
Comm object	56		
Description			
Outputs SPEED UP and SPEED DOWN are designed for speed control at gen-sets, where the governor supports binary control.			
For puposes of context help only		enter specification for context help here	

Speed Down

Related FW	1.6.0	Related applications	TLC-DC
Comm object	57		
Description			
Outputs SPEED UP and SPEED DOWN are designed for speed control at gen-sets, where the governor supports binary control.			
For puposes of context help only		enter specification for context help here	

- » Setpoint *TauSpeedActuat*

TauSpeedActuat

Setpoint group	Engine Params	Related FW	1.6.0
Options	1,0 .. 300,0 [s]		
Default value	10,0 s	Alternative config	NO
Step	0,1 s		
Comm object	10784	Related applications	TLC-DC
Description			
Time constant of the speed actuator connected to the binary outputs SPEED UP and SPEED DOWN. Setting of this parameter affects the length of pulses on these binary outputs. This is to match the reaction of the controller's regulator with the reaction time of the actuator. Adjust the setpoint to the pulse duration which is needed for the speed control device to travel from minimal position to the maximal position (these positions are adjusted via setpoints <i>MinSpeedLim</i> and <i>MaxSpeedLim</i>).			

- > Battery voltage compensation based on discharge current
 - » According to discharging current, the battery voltage is compensated within the range defined by setpoint *U LoadComp Rng*

» Setpoint *U LoadComp Rng*

U LoadComp Rng

Setpoint group	Battery Charge	Related FW	1.6.0
Range [units]	0,0 .. 10,0 [V]		
Default value	0,0 V	Alternative config	NO
Step	0,1 V		
Comm object	14695	Related applications	TLC-DC
Description			
Adjustable voltage range of compensation for battery voltage based on load current. Minimum is U LoadCom Rng/2. Maximum is U LoadComp Rng/2.			
<p>Example: for 5 V is the range -2,5 V if load current is MAX and +2,5 V if Load current is MIN).</p>			

» Setpoint *I LoadComp Min*

I LoadComp Min

Setpoint group	Battery Charge	Related FW	1.6.0
Range [units]	0 .. <i>I LoadComp Max</i> [A]		
Default value	10 A	Alternative config	NO
Step	1 A		
Comm object	14696	Related applications	TLC-DC
Description			
Minimum load current increases U Batt voltage level by "U LoadComp Rng/2".			
<p style="text-align: center;">Image 6.1 Current compensation</p>			

» Setpoint *I LoadComp Max*

I LoadComp Max

Setpoint group	Battery Charge	Related FW	1.6.0
Range [units]	<i>I LoadComp Min</i> .. 10 000 A		
Default value	200 [A]	Alternative config	NO
Step	1 A		
Comm object	14697	Related applications	TLC-DC
Description			
Maximum load current decreases U Batt voltage level by "U LoadComp Rng/2"			
Image 6.2 Current compensation			

» Setpoint *I LoadComp Chr*

I LoadComp Chr

Setpoint group	Battery Charge	Related FW	1.6.0
Range [units]	1 .. 10 [-]		
Default value	1	Alternative config	NO
Step	1		
Comm object	14698	Related applications	TLC-DC
Description			
This setpoint adjust the load character in time. This value is important for correct calculation of average current. If the load fluctuates slightly, use lower number. If the load fluctuates fast (big changes in short time), use higher number.			

> Full charge cycle

- » This function is designed for charging provide the full charge of the battery in applications where in standard charging cycle is gen-set stopped earlier due to fuel savings. Any N-th cycle can be then prolonged to full charging and it ensures longer life time of the battery.

» Setpoint *FullChrgCycle*

FullChrgCycle

Setpoint group	Battery Charge	Related FW	1.6.0
Range [units]	0 .. 99 [-]		
Default value	0	Alternative config	NO
Step	1		
Comm object	14692	Related applications	TLC-DC
Description			
Standard charging cycles are counted and every cycle with number that equals <i>FullChrgCycle</i> will be performed as per conditions above. I.e. limits of time/capacity or current are taken from "Full Charge" setpoints instead of standard charging setpoints.			

» Setpoint *I FullChrgStop*

I FullChrgStop

Setpoint group	Battery Charge	Related FW	1.6.0
Range [units]	0,0 .. 200,0 [A]		
Default value	1,0 A	Alternative config	NO
Step	0,1 A		
Comm object	14691	Related applications	TLC-DC
Description			
If full charge cycle is being performed, the stop charge current level is taken from this setpoint instead of <i>I Absorb Stop</i> .			

» Setpoint *FullChrgLimit*

FullChrgLimit

Setpoint group	Battery Charge	Related FW	1.6.0
Range [units]	0 .. 5000 [Ah]		
Default value	500 Ah	Alternative config	NO
Step	1 Ah		
Comm object	14689	Related applications	TLC-DC
Description			
If full charge cycle is being performed, the stop charge capacity level is taken from this setpoint instead of <i>ChargeLimit</i> .			

- » Setpoint *FullChrgTimeout*

FullChrgTimeout

Setpoint group	Battery Charge	Related FW	1.6.0
Range [units]	0 .. 999 [min]		
Default value	60 min	Alternative config	NO
Step	1 min		
Comm object	14690	Related applications	TLC-DC
Description			
If full charge cycle is being performed, the stop charge time duration is taken from this setpoint instead of <i>ChrgTimeout</i> .			

- » Value *NumOfFullCycles*

NumOfFullCycles

Value group	Statistics	Related FW	1.6.0
Resolution [units]	1 [-]		
Comm object	14693	Related applications	TLC-DC
Description			
Statistic value for counting the number of full cycles			

- > History record of transition between Absorption and Discharge phase modified
- > SNMP support via IB-Lite
 - » Support of SNMP was added
 - » Table of supported object can be generate via LiteEdit in ribbon Controller - Generate Cfg Image - Generate SNMP MIB table
- > Contactor Fb's logic
 - » Setpoint *Contactor Fb's* was delete
 - » Adjusting of usage of breakers feedbacks is made by configuring of appropriate binary inputs
 - Example:** If binary input GCB feedback is configured, than controller is automatically waiting for this feedback. There is no need to adjusted it via setpoint *Contactor Fb's*
- > Alarm Indication Only protection for binary inputs
 - » There is new protection type for binary inputs adjusted like alarms
 - » This protection is called Alarm and History Indication (A+H Indication)
 - » When binary input is activated, history record is made and also alarm is displayed in alarmlist. After deactivation of binary input alarm disappear from alarm list. There is no need to press Fault Reset Button
 - » Alarm is configured via LiteEdit in the same way like other alarms
- > Cooldown protection type renamed to BOC
 - » Protection type for binary and analog inputs was renamed from Cooldown to BOC
- > Waiting for feedback
 - » controller is waiting 5 seconds for breaker feedback in case that some breaker feedback is configured on binary input

- > Added delay for transition between bulk phase and absorption phase in charging cycle
 - » Setpoint *UAbsorStartDel*

UAbsorStartDel

Setpoint group	Battery Charge	Related FW	1.6.0
Range [units]	0 .. 600 [s]		
Default value	5 s	Alternative config	NO
Step	1 s		
Comm object	14918	Related applications	TLC-DC
Description			
Delay is used at the end of the bulk phase. When battery voltage reach level adjusted via setpoint <i>U Absorb Start</i> , delay will start countdown. Charge cycle will switch into absorption phase after countdown delay.			

- > Renaming of setpoint *U Absorption*
 - » this setpoint was renamed to *U Absorb Start*

6.2 Repaired bugs

- > Repaired behavior of setpoint *ECU Control*

ECU Control

Setpoint group	Engine Params	Related FW	1.6.0
Range [units]	ENABLED, DISABLED [-]		
Default value	ENABLED	Alternative config	NO
Step	-		
Comm object	11086	Related applications	TLC-DC
Description			
Options: The setpoint enables adjustment of the electronic engine control by following settings. ENABLED: There is a full available control of an electronic engine given by the setting of the ECU unit of the engine, i.e. Start request, Stop request, Speed request are enabled if available. DISABLED: Control of an electronic engine is fully blocked and the IntelliLite Telecom DC can only monitor the values of an electronic engine.			

- > Voltage measurement sensors curves for analog inputs AIN4-AIN6
 - » value from analog inputs AIN4-AIN6 is converted true sensors curve adjusted in LiteEdit
- > History records texts
 - » Texts in alarmlist and in history for Ugen protections are the same
 - » Texts in alarmlist and in history for Ucomp protections are the same
- > Setpoints related to analog input 1
 - » In default configuration these setpoints were invisible until some change in analog input 1 configuration.

7 Changes in the version 1.1.0

7.1 New features

- Hardware has been modified to fit two languages at a time. Languages in default archive are now English and Chinese. Hardware version is increased to v1.7.
- Hardware changes brought backwards incompatibility. I.e. new firmware (v1.1 or newer) is no longer supported by controllers with hardware 1.6 (former ID-FLX-DC).
- LBI name, alarm text and history record SPRINKLER is renamed to SD OVERRIDE.

8 Related information

8.1 Available files

Firmware (*.mhx)
For IntelliLite^{NT} Telecom DC
IL-NT-TLC-DC-1.6.0.mhx

Table 8.1 Available firmware

Archives (*.ail)
For IntelliLite^{NT} Telecom DC
IL-NT-TLC-DC-1.6.0.ail

Table 8.2 Available archives

8.2 Overview of all available hardware

	IntelliLite^{NT} Telecom DC
Binary Inputs	7
Binary Outputs	7
Analog Inputs	9
Analog Outputs	0
Communications	RS232, RS485, USB, Ethernet, GPRS

Table 8.3 Available hardware

8.3 Available related documentation

Documents	Description
IL-NT-TLC-DC 1.2.0 Global Guide.pdf	Global Guide of controller. http://www.comap.cz/support/download-center/type/manuals/
LiteEdit 5.1.0 Global Guide.pdf	Global Guide of PC tool LiteEdit http://www.comap.cz/support/download-center/type/manuals/
LiteEdit 5.1.2 New Features List.pdf	New Features List of PC tool LiteEdit http://www.comap.cz/support/download-center/type/manuals/
InteliMonitor-3.0-Reference Guide.pdf	Reference guide of PC tool InteliMonitor http://www.comap.cz/support/download-center/type/manuals/
InteliMonitor-3.1.1 New Features.pdf	New Features list of PC tool InteliMonitor http://www.comap.cz/support/download-center/type/manuals/
Inteli Communication Guide.pdf	Communication guide for the Inteli controllers http://www.comap.cz/support/download-center/type/manuals/

Table 8.4 Available documentation

9 Notes

9.1 Document history

Revision number	Related sw. version	Date	Author
7	1.6.0	9.11.2021	Michal Slavata
6	1.5.0	3.12.2020	Čeněk Pěč
5	1.4.0	28.1.2019	Michal Slavata
4	1.3.0	4.7.2017	Michal Slavata
3	1.2.0	1.4.2016	Michal Slavata
2	1.1.0	23.10.2015	Petr Šťastný
1	1.0.0	9.4.2015	Petr Šťastný