Compact Controller for Stand-by and Parallel Operating Gen-sets

InteliGen^{NT}, InteliSys^{NT}, InteliMains^{NT} Modular Controller

Troubleshooting guide

IG-NT, IG-NTC, IG-NT-BB, IG-NTC-BB, IS-NT-BB, IS-NTC-BB,
IM-NT, IM-NT-BB, IM-NTC-BB
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TROUBLESHOOTING GUIDE

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Table of Contents

General guidelines

This manual provides list of typical problems you may come across when installing / operating the IG/IS/IM-NT controllers. It also incorporates the “How to...” section with examples of some non-standard or interesting applications of these controllers, List of Abbreviations and List of Possible Events which contains information about alarm messages which can be displayed by a controller.
This manual is intended for everyone who is concerned with operation and maintenance of gen-sets.

Available related documentation

PDF files	Description
IGS-NT-SPTM-3.1.0 Reference Guide.pdf	General description of SPtM applications for InteliGen NT and InteliSys NT. Contains description of engine and generator control, control of power in parallel to mains operation, list of all Setpoints, Values, Logical Binary Inputs and Logical Binary Output.
IGS-NT-SPI-3.1.0 Reference Guide.pdf	General description of SPI applications for InteliGen NT and InteliSys NT. Contains description of engine and generator control, control of power in parallel to mains operation, list of all Setpoints, Values, Logical Binary Inputs and Logical Binary Output.
IGS-NT-MINT-3.1.0 Reference Guide.pdf	General description of MINT applications for InteliGen NT and InteliSys NT. Contains description of engine and generator control, powermanagement, list of all Setpoints, Values, Logical Binary Inputs and Logical Binary Output.
IGS-NT-Combi-3.1.0 Reference Guide.pdf	General description of Combi applications for InteliGen NT and InteliSys NT. Contains description of engine, and generator control in SPTM, SPI and MINT mode, powermanagement, list of all Setpoints, Values, Logical Binary Inputs and Logical Binary Output.
IGS-NT-COX-3.1.0 Reference Guide.pdf	General description of COX applications for InteliGen NT and InteliSys NT. Contains description of engine and generator control, powermanagement, list of all Setpoints, Values, Logical Binary Inputs and Logical Binary Output.
IGS-NT Application Guide 05-2013.pdf	Applications of InteliGen NT, InteliSys NT and InteliMains NT, examples of connection, description of PLC functions, Virtual and Shared peripheries.
IGS-NT Operator Guide 01-2014.pdf	Operator Guide for all hardware variation of InteliGen NT and InteliSys NT, InteliVision 5 and InteliVision 8.
IGS-NT Installation Guide 08-2014.pdf	Thorough description of installation and technical information about InteliGen NT, InteliSys NT and InteliMains NT and related accessories.
IGS-NT Communication Guide 05-2013.pdf	Thorough description of connectivity and communication for InteliGen NT, InteliSys NT and InteliMains NT and related accessories.
IGS-NT Troubleshooting Guide 08-2014.pdf	How to solve most common troubles with InteliGen NT and InteliSys NT controllers. Including the list of alarm massages.
IGS-NT & ID-DCU Accessory Modules 07-2014.pdf	Thorough description of accessory modules for IGS-NT family, technical data, information about installation of the modules, how to connect them to controller and set them properly.

Troubleshooting

Communication

RS232(x) communication doesn't work

Solution:

a) Setpoint *RS232(x) mode* is set to different setting than DIRECT – change its setting to DIRECT.
b) Converter to RS485 is active at this communication channel – change setpoint *RS485(x)conv.* to DISABLED position.
c) Earthing problem exists between the PC and the controller, i.e. the battery negative potential has different levels in the two devices. IG/IS/IM-NT controllers has a built-in protection which disconnects battery negative (GND) from the RS232 terminal. Re-activation takes some time (~ 1 min) after you disconnect the cable (component cools down).
You can temporarily disconnect your laptop PC from the grid (e.g. if you intend to download controller configuration only). You can disconnect the earth wire from your PC. The best solution is to use the RS232 galvanic separation device, e.g. one of those which are mentioned in the InteliCommunication Guide, section Converters.

RS232(2) / RS485(2) / USB communication doesn't work

Solution:

Relates to IG-NTC/EEC versions of IG-NT family and to IS-NT / IS-NT-BB. Controller FW version is lower than 2.0 and/or controller was shipped from ComAp before September 2006. It is necessary to download new FW into the communication sub-processor. It can be done by sending unit to ComAp or by downloading the latest version of Peripheral modules upgrade package and following procedure described in the attached documet.

Problem accessing controller after configuration programming error

Problem:

It can happen that remote configuration programming attempt fails (e.g. due to bad phone line condition) and from that moment on controller shows on its display "CONTROLLER CONFIGURATION ERROR".

Solution:

In this stage, even with damaged configuration, controller is still able to receive another phone call with another attempt to program configuration.
However, if the situation is to be solved locally (i.e. a local technician intends to re-program the configuration), it is possible to switch the RS232(1) port back to the DIRECT connection mode by simultaneous pressing up+left+right arrows on the controller.
It is strongly recommended not to upgrade controller firmware using a remote connection, because in case of programming failure problem has to be solved locally using boot jumper programming procedure. See Unsuccessful controller programming chapter for information about this procedure.

Modem TC35i does not respond to SMS commands

Solution:
Do the following:

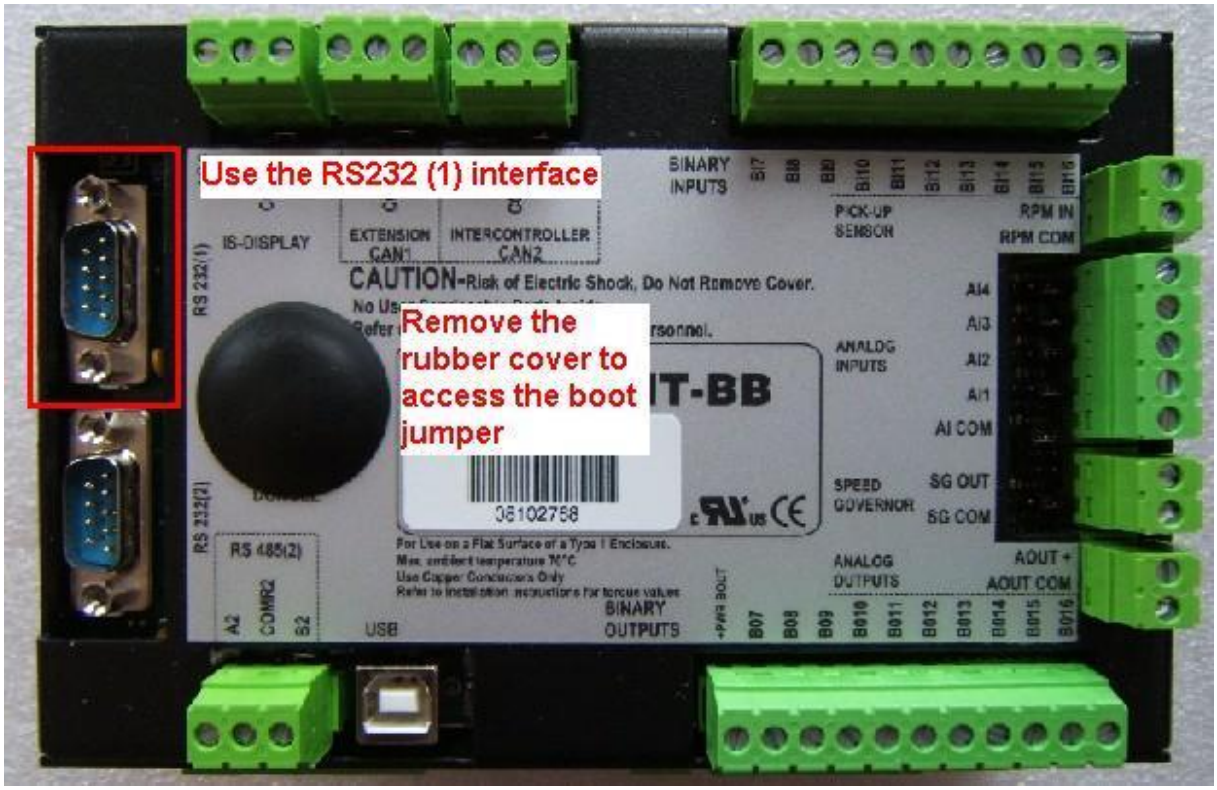
1. Send **AT+CPMS="MT","MT","MT"** command via hyperterminal or using the RS232()MdmIni parameter.
2. Send **AT+CPMS="SM","SM","SM"** command via hyperterminal or using the RS232()MdmIni parameter.
3. Restart the modem.

Unsuccessful controller programming

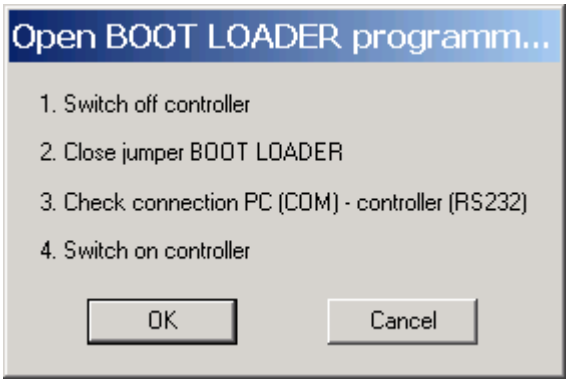
Procedure which is described in this chapter is part of the Boot Jumper Programming video which you can watch here:
http://www.comap.cz/support/training/training-videos

It is necessary to use the boot jumper for controller programming in case of unsuccessful controller firmware programming. It may for instance happen due to an accidental cable disconnection, computer failure or remote connection drop out. If controller firmware programming was not successful, it is not possible to open connection to a controller, it does not respond and controller screen is blank. In such case you need to use this procedure for controller programming:

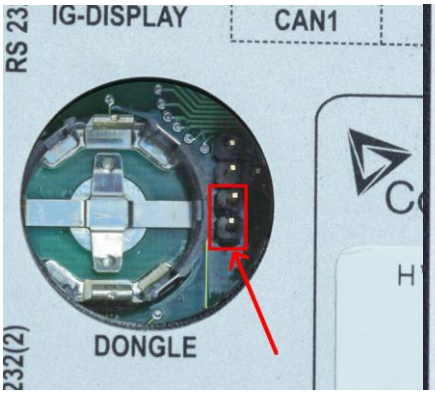
1. Close connection to controller and start GenConfig
2. Check communication port setting in GenConfig. Go to Options – Select connection and select the right communication port. It is necessary to use the RS232 (1) controller interface, boot jumper programming does not work with the RS232 (2) or USB controller interface.



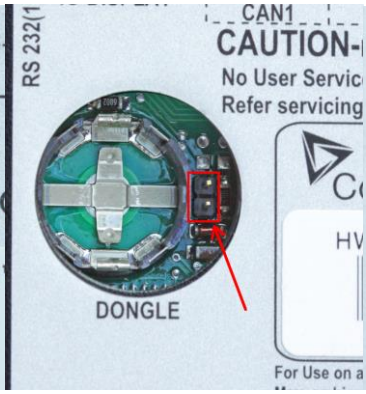
3. Go to File – Firmware upgrade and Cloning… – FW upgrade (default configuration)… and select firmware you would like to upload into a controller.
4. Follow instructions in the notification window:



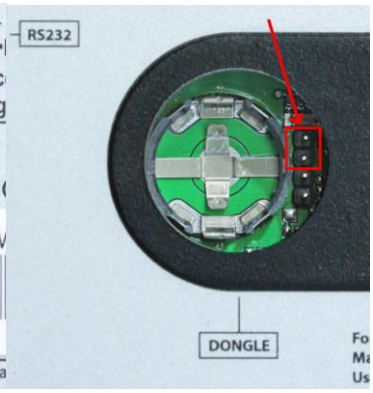
Opened BOOT LOADER jumper is marked on the picture (there are three different possibilities):



IG-NTC and IS-NT



IG-NT



IGS-NT(C)-BB

Close the jumper for programming.

5. Follow instructions in the notification window after programming:

It is possible to configure and program controller in the standard way after this procedure is done.

How to check that CAN communication between controllers works

Check strings CAN16 and CAN32 to see if controller communicates with other controllers via the CAN2 bus (Intercontroller&Monitoring CAN2). Use InteliMonitor, go to Values - Info to check state of the strings. These strings contains information about addresses of other controllers which communicates with a particular controller. Position of each controller in the strings is given by setpoint **Comms setting**: *Contr. address*.

Strings looks like this if you are checking strings on controller with **Comms setting**: *Contr. address* set to 1 and controller does not communicate with any other controllers via CAN2:

CAN16 I000000000000000
CAN32 00000000000000000

Strings looks like this if you are checking strings on controller with **Comms setting**: *Contr. address* set to 1 and controller communicates with controllers with *Contr. address* set to 2, 16 and 31:

CAN16 I I 0000000000000 I
CAN32 00000000000000 I 0

Strings Reg16 and Reg32 are available directly on controller screens if MINT, Combi or COX application is used in controller. These strings contains information about addresses of controllers which belongs into the same logical group as controller which displays this information. Strings Reg16 and Reg32 contains the similar information, however the symbol “I” is displayed only for controllers, that belong to the same logical group as this controller.
For more information about logical groups see description of **Pwr management**: *Control group*, *GroupLinkLeft* and *GroupLinkRight* setpoints (these setpoints are part of the **ProcessControl** group in the COX application) in a relevant IGS-NT-xy-Reference Guide.

CAN communication does not work

Problem:

CAN communication (either via CAN1 or CAN2 interface) does not work.

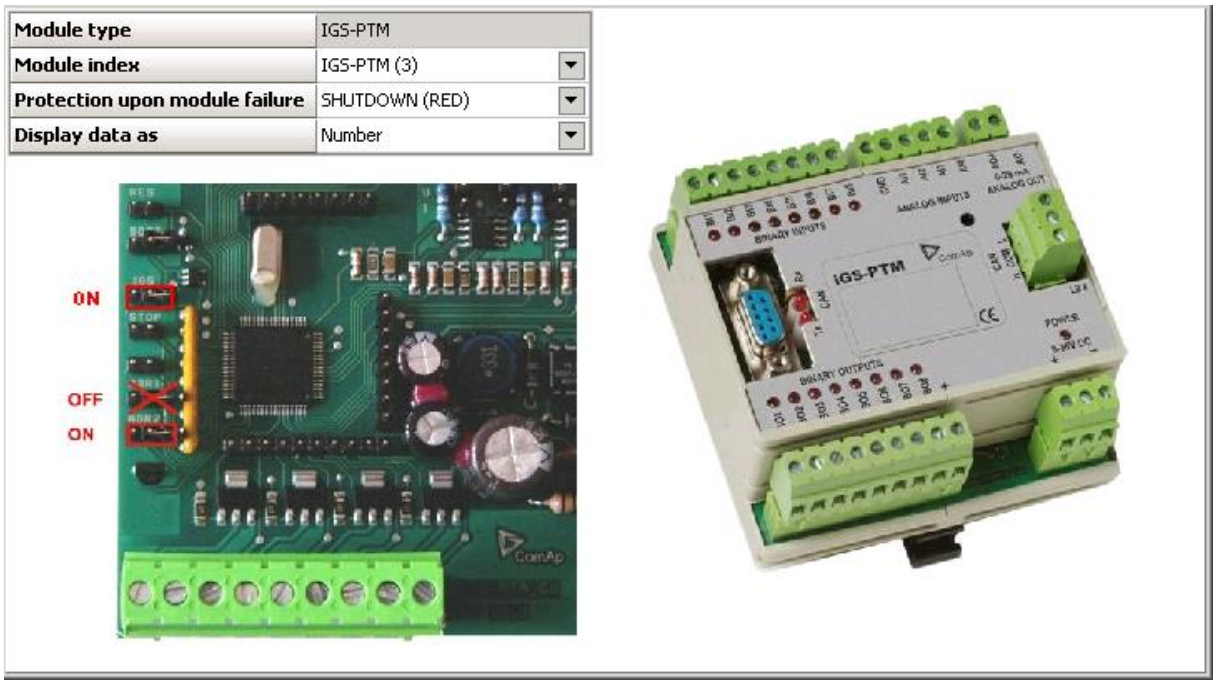
Solution:

a) Check if CAN bus is properly terminated. Measure resistance between the H and L CAN terminals when all devices connected to a CAN bus are switched off. Resistance between the H and L should be about 60 Ω, because two 120 Ω resistors has to be used to terminate CAN bus at the both ends of a CAN line. See *External modules connection* chapter in IGS-NT-Installation Guide for information about CAN bus connection.
Be aware that some ComAp devices has a built in 120 Ω resistor which is connected to a CAN bus if jumper next to a CAN interface is closed! Make sure that the terminating resistor jumper is closed only in devices which are at the ends of a CAN line.

b) Check if each device connected to a CAN bus has a unique CAN address.

In case of the CAN 2 bus it means that **Comms settings**: *Contr. address* setpoint has to be set to a unique number in each controller which is connected to the CAN2 bus. See *Addresses of Modules on CAN2* chapter in Inteli Communication Guide for information about setting of CAN addresses in ComAp communication modules and InteliVision to avoid conflict between addresses.

In case of devices connected to the CAN 1 bus make sure that addresses are set according to instructions which are displayed upon module configuration on the GenConfig card Modules. On the picture is example of information which is displayed about IGS-PTM module jumpers setting. Similar information is displayed for all extension modules.



c) Check wiring topology of the whole CAN bus cable. The topology must be linear (straight), not “star type” and must not contain any loops.

Controller interface

Setpoints setting cannot be changed

Solution:

a) Setpoints are password protected and password is not entered. Go to menu -> Users/Password and log in. If your user profile has sufficient access rights, setpoints editing will be unblocked. System administrator can change controller configuration to give you access to setpoints.
b) Password is entered (= user is logged in), but setpoints cannot be changed. That means these are probably blocked by some higher protection level than the current user has got. You need to log in as a user with sufficient access rights or contact system administrator to give you access to setpoints.
c) Access lock function is active. Switch the Access lock function off.

Controller does not react to buttons pushing

Problem:

Controller does not react to Start, Stop, Fault & Horn reset, GCB, MCB, MGCB or controller mode ←,→ buttons pushing.

Solution:

a) Controller is not in MAN or SEM (IS-NT only) mode, switch it to one of these modes. See *OFF-MAN-AUT-TEST mode* chapter in IGS-NT-x.y-Reference Guide for information which buttons works in a particular mode. For example GCB, MCB, Start and Stop buttons does not work in the AUT mode.
b) There are active alarms in controller alarm list. Button function can not be performed because of an alarm activity. Get rid of an alarm first and use a button again.
c) Setpoint **Basic settings**: *Local buttons* is set to position EXTBUTTONS, which means that only external control using binary inputs is enabled. Set this setpoint to position PANEL or BOTH to be able to control genset using its panel buttons.
d) Access lock function is active. Switch the Access lock function off.

Controller mode cannot be changed

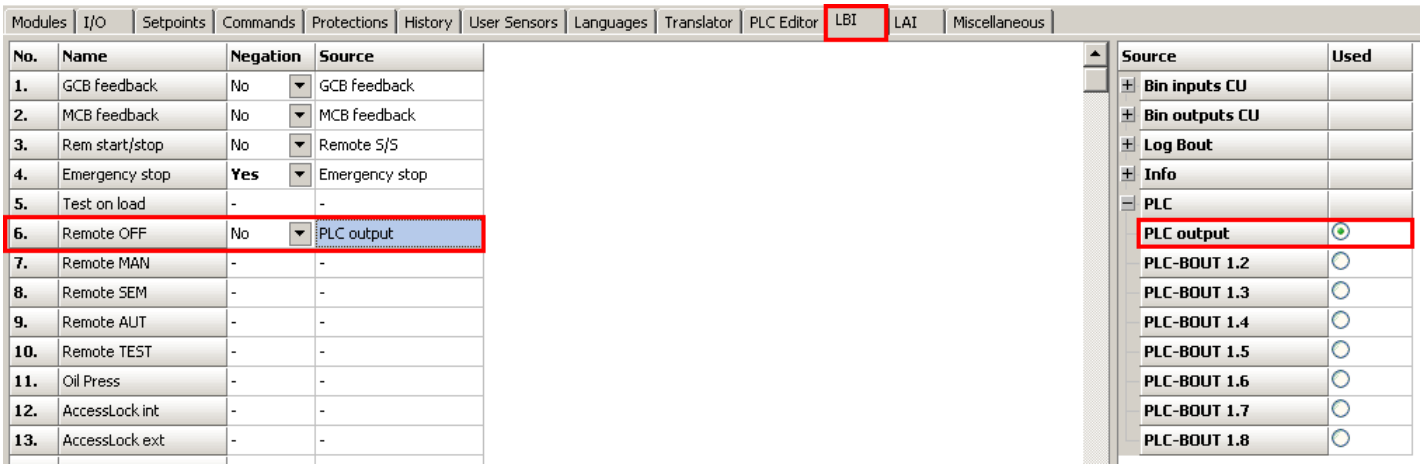
Problem:

Controller mode cannot be changed,

Solution:

a) The **Basic settings**: *ControllerMode* setpoint is password protected and password is not entered. Go to menu -> Users/Password and log in. If your user profile has sufficient access rights, setpoint will be unblocked. System administrator can change controller configuration to give you access to commands and setpoints.
b) Function for controller mode forcing is active. Go to Measurement IO / Binary inputs and check if binary input with Remote OFF, Remote MAN, Remote AUT or Remote TEST function is active. If present and active (check also input polarity using GenConfig – input function can be inverted), controller mode cannot be changed from mode selected with a binary input function. It is necessary to change binary input state or disconnect binary inputs from controller to be able to change controller mode. There may not be binary input with one of the above mentioned functions.

Check the LBI card in GenConfig to see if e.g. PLC output is used to force controller into a particular mode:



Some setpoints cannot be changed even if correct password is used

Solution:

Force value function is probably configured to a setpoint and activated. If the function is active (i.e. alternative value is forced), the original value is not visible and cannot be changed. To modify the original value, deactivate the Force value function(s) related to this setpoint first.
Letter F is displayed next to a setpoint if its setting is changed using the Force value function.
You can check in GenConfig if Force value is configured to a setpoint which can not be changed and how it is activated.

Unknown alarm is displayed

Problem:

Alarm which can not be found in this guide or a Reference Guide is displayed by controller.

Solution:

All texts which are displayed by controller can be changed using Trasnlator in GenConfig.
Try to find an alarm text on the Translator card, use the Ctrl+F function to find and alarm text and match it with the default English text. Check PLC functions Force protect setting and customized protections (see card Protections in GenConfig) to find alarm messages which are not listed in the List of Possible Events.

Wrong display HW message

Problem:

"WRONG DISPLAY HW" message is displayed if wrong display hardware is detected.

Solution:

It is necessary to send IS-Display/IG-Display to ComAp for repair if the message is displayed.

Configuration table error

Problem:

"Configuration table error" message is displayed by controller. There are two possible reason:

1. Controller configuration upload was not done properly (typical reason is cable disconnection during configuration upload)
2. Controller was set up incorrectly during production

Solution:

Try to upload your configuration into controller again. Use one of default configuration files if it does not help (in case that the original configuration is corrupted).
In case that configuration uploads does not help, connect InteliMonitor to the controller and check if it is in the INIT state. It is necessary to send controller to ComAp for repair if the message is displayed and controller is in the INIT state. In case that InteliVision is used, these two messages has the same meaning as "Configuration table error":
Comm. error (24492:080000F7)
Timeout (24571:080000BC)

Display is blank and LEDs are neither blinking nor glowing

Problem:

There is nothing displayed by controller, display backlight is off and LEDs are not flashing or glowing.

Solution:

a) There is no power supply voltage. Check the power supply voltage.
b) Boot jumper is closed, switch controller off, open the jumper and switch controller on.

Display is blank, but backlight works

Problem:

There is nothing displayed by controller, but display backlight is on.

Solution:

a) Previous controller programming failed, follow instructions in the Unsuccessful controller programming section.
b) IG-NT, IG-Display: Display contrast is set to an extremely low value. Hold Enter and push the arrow up ↑ button then to increase contrast.

Display is showing “Unsupported code page”

Problem:

The following message is shown on the display: `Unsupported code page`

Solution:

The language used in the controller is not supported in the display (unsupported languages with graphical characters). In this case, change the language of the controller and contact ComAp to get more information about supported graphical languages (by default Chinese and Korean).

INIT is displayed and controller mode cannot be changed

Problem:

The unit shows "INIT" and does not work, controller mode can not be changed. This situation occurs after controller reset. Reason of the problem are either incorrectly set setpoints or flat RTC battery.

Solution:

a) A new firmware containing new setpoints was uploaded into a controller. Use InteliMonitor online connected to the controller to check all setpoints and fix setting of those which are set in a wrong way. You have to change at least one setpoint setting. If all setpoints are correct, change one of them and put it back to the original value to recalculate the checksum. It may be necessary to switch controller off and on after changing setpoints setting. You can tick Reset from Init state function in Options in GenConfig to avoid repeating of this problem (Init state reset is done automatically by GenConfig if this function is active).
b) The RTC backup battery is flat. Send a controller to your distributor for battery exchange if the RTCbatteryFlat message is displayed[4].

External display problems

No reaction to pushing command buttons or setting adjustments

Problem:

It is not possible to adjust any setpoint setting and issue any command using IG-NT panel, IG/IS-Display module or InteliVision (IV).

Solution:

Access lock input is active for that particular terminal, therefore this terminal can be used only for monitoring. You can check this by looking on the first measurement screen (press Esc to enter menu and select Measurement).

These symbols are displayed if access lock is active:
IS-Display – “crossed hand” symbol is displayed in the upper left corner
IG-Display and IG-NT – lock symbol is displayed in the upper right corner
InteliVision – “crossed hand” symbol is displayed in the upper right corner of the Status bar

part of measurement screens (see Operator Interface chapter in an InteliVision Reference Guide for information about the Status bar part of measurement screens)

Binary input function	Locked display module
AccessLock int	IG-NT/EE internal display, IS-Display and IV with Terminal address = 1
AccessLock D#2	IG-Display, IS-Display and IV with Terminal address = 2
AccessLock D#3	IS-Display and IV with Terminal address = 3

InteliVision/InteliVision 8 and image retention

Problem:

In general LCD screens are susceptible to image retention at varying degrees. Image retention is caused by a parasitic capacitance build up within the LCD cell, which prevents the liquid crystal molecules from returning to their normal relaxed state.
Image retention (reversing burn-in) can be observed during using InteliVision, when retention of the main screen, which is displayed for most of the time, is strongly visible also on other screens. This image retention is not permanent change. After some time it fades.

Solution:

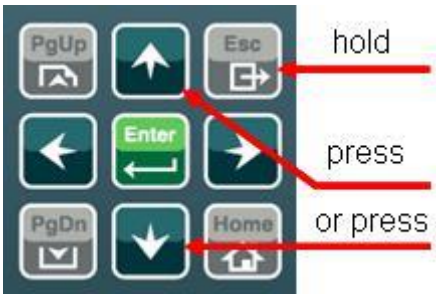
DECREESE BRIGHTNESS of screen to approx. 50-60%.
This solution helps to decrease recovery time of a screen to less than 2 minutes, when an image retention fades (the time can be longer if is used IV in too hot or too cold environment).

There are two brightness settings available:

- Day mode
- Night mode (especially for Marine applications)

Changing the modes can be done by holding the ESC button for 1 second.

Display brightness can be adjusted in range from 0 % to 100 % in both modes. Brightness of the display can be increased/decreased by holding ***Esc*** button and repeated pushing ⇧ ⇩. See the picture below:



Push ***ESC + PgUp*** buttons or ***ESC + PgDn*** buttons to select mode which should be adjusted.

Synchronizing, Load control

Gen-set voltage is increasing/decreasing over/under the limits during synchronization

Problem:

When gen-set is synchronizing to the Bus/Mains its voltage goes out of limits and GCB is opened due to over/undervoltage protection.

Solution:

a) Check setpoints *GenNomV* or *GenNomVph-ph* if they are adjusted to proper value.
b) If the voltage is adjusted properly check if the same value is in *MainsNomV/BusNomV* or *MainsNomVph-ph/BusNomVph-ph*. **These values need to be adjusted to the same value even if nominal voltages of gen-set and Bus/Mains are different!**
c) See the example below for proper adjustment of system with different nominal voltages on Mains/Bus and gen-set.

Example:

Both setpoints *GenNomV* or *GenNomVph-ph* and *MainsNomV/BusNomV* or *MainsNomVph-ph/BusNomVph-ph* must be adjusted to the same values according to the value of actual generator nominal voltage. E.g. gen-set nominal is 231 V but Bus/Mains nominal is 240 V.

- In this case both setpoints need to be adjusted to 231 V and setpoints of corresponding protections for Bus/Mains need to be set assymetrically.
- For 240 V on Bus/Mains it is typical to open MCB when voltage reaches 254 V or 225 V.
- Since the setpoint for Mains/Bus nominal voltage is adjusted to 231 V corresponding protection setpoints need to be adjusted to *Mains >V/Bus >V* = 106% and *Mains <V/Bus <V* = 97 % (hence the desired values are reached).

GCB is opened before the Load ramp time is over

Problem:

After reverse synchronization and during generator unloading is GCB opened before the Load ramp time is over.

Solution:

a) **AMF settings**: *BreakerOverlap* time is shorter than the **Sync/Load ctrl**: *Load ramp* time setting. Set *Breaker overlap* to the same or longer time than *Load ramp* setpoint.
b) GCB is opened during generator unloading as soon as generator power level given by setpoint **Sync/Load ctrl**: *GCB open level* is reached. Decrease the *GCB open level* setting to avoid premature GCB opening.
c) Load in island was much lower than gen-set nominal power. The real time of load ramp is *Load ramp* x Pinitial_island / *Nomin power*; controller switches off GCB immediately (with 1s delay) as soon as generator power gets below the *GCB open level*.

Sync fail alarm is issued

Solution:

a) Setpoint **Sync/Load ctrl**: *Sync timeout* is set to too short time -> set it to a longer time to allow controller to match all synchronizing conditions.
b) Speed governor or AVR control is not setup correctly. See chapters *Speed Governor Interface List* and *AVR Interface List* in IGS-NT Installation Guide for information about proper connection of a speed governor and AVR. See *Sync/load control adjustment* and *Volt/PF control adjustment* chapters in an IGS-NT Reference Guide for information how to setup controller speed and voltage regulation loops correctly.

MGCB is not closed even all conditions are fulfilled

Solution:

a) IM-NT **Bus protect**: Bus >V Hst, Bus <V Hst, Bus >f, Bus <f do not have the same settings as IG/IS-NT generator control unit (use the same settings for generator and mains control unit).
b) IM-NT and other gen-sets are not in the same logical group. See setpoints **Pwr Management**: Control group (Controller cannot see each other via CAN bus).

IM-NT BTB connects dead buses together

Problem:

It happens, because even dead buses are evaluated by controller as “healthy”. Reason is that either setpoints **BusL protect**: *BusL Volt prot* and *BusLfreq prot* are set to DISABLED or setpoints **BusR protect**: *BusR Volt prot* and *BusRfreq prot* are set to DISABLED. These settings means that controller does not evaluate if bus is healthy according to bus voltage and frequency protections setpoints setting, because bus voltage and frequency check are simply disabled.

Solution:

Change setting of at least one above mentioned setpoint (*BusxVolt prot* and/or *Busxfreq prot*) to ENABLED (in both **BusL protect** and **BusR protect** groups) to avoid connecting of dead buses.

Power management

Gen-set doesn't share load with other gen-sets

Solution:

Check if the gen-set is not running in the local baseload mode. This mode is active if setpoint **ProcessControl**:*LocalBaseload* is set to other value than OFF. If this setpoint is not set to OFF then the gen-set is taken out of Load sharing and Power management. Fof rmore details see chapter *Local Baseload* in IGS-NT-MINT-x.y-Reference Guide.

Running Hours Equalization does not work properly

Problem:

Gensets priority switching based on engine running hours **(Pwr management**: *PriorAutoSwap* is set to RUN HOURS EQU) does not work properly and some or all gensets has the same priority. It means that gensets with the same priority behaves as one large genset and runs at the same time.

Solution:

This problem is caused by incorrect priority switching system initialization. Follow these steps to get rid of the problem:

1. Set #*PriorAutoSwap* setpoint to DISABLED
2. Set Priority setpoints in all controllers to unique numbers
3. Set #*PriorAutoSwap* setpoint to RUN HOURS EQU

Load shedding is active although not all gensets are loaded

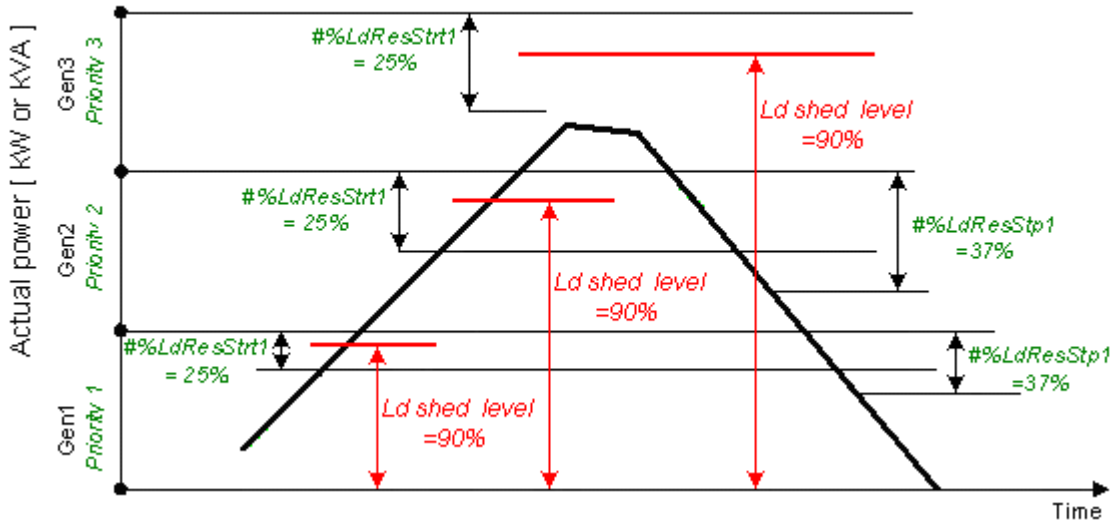
Problem:

Load shedding outputs (LdShed stage 1,2 and 3) are active although not all available gensets are loaded (running and connected to bus). The reason is that Load shedding and Power management control systems are independent and it is necessary to set controller properly to avoid this situation.

Solution:

Use controller power management in “relative” mode. It means that **Pwr management**: *#Pwr mgmt mode* has to be set to REL (%). Make sure that **Pwr management***: #%LdResStrt x* is set below **Load shedding**: *Ld shed level* so idle genset is started before load shedding output is activated.

Example of correct Power management and Load shedding setting is on this picture:



You can see that the **Pwr management**: *#%LdResStrt1* limit is crossed first when system load goes up and request to start additional genset is issued before the load shedding request. However, it is not enough to set limits in the suggested way to make system work properly. It is important to set **Pwr management**: *#NextStrt del* much shorter than **Load shedding**: *Ld shed delay* so there is enough time for starting genset to start, synchronise and take over load before a load shedding output is activated.

MGCB is not closed although gensets are running

Problem:

All available gensets are running and connected to bus (GCB's are closed), but IM-NT does not close MGCB.

Reason of the problem is that Act Reserve (Actual load reserve) value is not higher than value of currently used **Pwr management**: *LoadResStrt x* setpoint (binary input functions *Load res x* can be used for switching between *LoadResStrt x* setpoints). Act Reserve has to exceed a *LoadResStrt x* value so IM-NT evaluates system reserve as sufficient to connect load to gensets (this evaluation is not done when system should run in parallel with mains).

Check state of the Syst res OK signal in InteliMonitor (go to Values/Log Bout/LogBout 4) to see if Act Reserve is evaluated by IM-NT as sufficient enough (condition for MGCB closing is ActReserve > *LoadResStrt x*)

Solution:

a) Check if setpoint **Pwr management**: *Pwr management* is set to ENABLED in genset controllers (there is no such setpoint in IM-NT itself). Act Reserve value (P_{BNom}) in IM-NT is based on information it receives from gensets power management system. There is no information about available power sent from gensets controllers to IM-NT if *Pwr management* is set to DISABLED.

b) Decrease value of a currently used **Pwr management**: *#LoadResStrt x* setpoint so available Act Reserve (P_{BNom}) is higher than the *#LoadResStrt x* setpoint. Do that if you consider available Act Reserve power sufficient enough to cover a system load.
You can use alternative *#LoadResStrt x* setpoint with setting low enough to enable MGCB closing (use a *Load res x* binary input function for switching to a different *LoadResStrt x* setpoint).

c) Set **Pwr management**: *#LoadResStrt x* setpoint to a negative value if you can not set **Pwr management**: *Pwr management* setpoint to ENABLED in gensets controllers (e.g. IGS-NT-LSM+PMS dongle is not used in genset controllers and power management function is not available then). It is necessary to fulfill the following condition to enable MGCB closing:

$$P_{BNom} > P_{Akt} + Reserve$$

P_{BNom} Sum of the nominal power of all running gen-sets (displayed as Act Reserve value by IM-NT)

P_{Akt} System load
Reserve selected setpoint *#LoadResStrt x*

Setting setpoint *Pwr management* to DISABLED in genset controllers means that P_{BNom} is always 0 in IM-NT (no power information is received from genset controllers) and it is necessary to set *#LoadResStrt x* to a negative value to meet the condition for MGCB closing.

It is sufficient to set *#LoadResStrt x* to -1 if only one MGCB needs to be closed (P_{Akt} is always 0 before the first MGCB breaker is closed). However, this setting is not sufficient if several MGCBs should be closed and it is necessary to set *#LoadResStrt x* to a lower value.
E.g. it is necessary to set a *#LoadResStrt x* setpoint to -101 (or a lower value) to achieve second MGCB closing if P_{Akt} is 100 after closing of the first MGCB:

$$P_{BNom} > P_{Akt} + Reserve$$
$$0 > 100 + (-101)$$

PC software

There is no history in .ant file

Solution:

a) InteliMonitor / Settings / History – the Typical program setting is to “Site monitored from this computer only”. If this is not true, i.e. some other computer may be connected sometimes to the site (controller), it may read out the history records and after this computer is connected again, there appear to be no records in the archive. In such a case (especially can happen with remote, e.g. modem connections), **please switch to “Site monitored from more computers”**, which ensures proper history reading. The first option provides faster history reading if there are only few new records, but with more computers accessing the same site leads to the above mentioned behaviour.
b) Archive was saved with GenConfig tool with version lower than 2.1. GenConfig is offline tool for configuration purposes, so archives saved using this tool does not contain actual history data. That’s why history is not saved at all with this tool. Starting from version 2.1, GenConfig is able to read history from controller and save it as part of controller configuration file.

History is not complete

Problem:

Some history records which are available in controller are not included in downloaded history.

Solution:

This problem is caused by InteliMonitor setting. It happens if history reading is set to *Site monitored from this computer only* and more computers are used to read data from a controller. InteliMonitor with *Site monitored from this computer only* setting reads only history records which were not downloaded during the last connection and records are missing if the last connection was done using a different computer.
Go to Settings -> History and change setting from *Site monitored from this computer only* to setting which matches your needs. Recommended settings are *Site monitored from more computers* or *Service tool* (see InteliMonitor-x.y-Reference Guide manual for more information).

Electrical measurement

Controller measures wrong generator/mains/bus voltages or currents

Problem:

Controller measures wrong generator/mains/bus voltages or currents, because setpoint **Basic settings:** *CT ratio prim / Im3ErFlCurCTp / VT ratio / Vm VT ratio* is set to a wrong value. Setpoint setting does not match CT / VT ratio of used measurement transformer.

Solution:

a) Change it to correct value according to the VT/CT specification.

b) For IS-NT-BB or IG-xxC HW types, setpoint **Basic settings:** *CT ratio sec* / *Im3ErFlCurCTs* / *VgInpRangeSel* / *VmInpRangeSel* is set to a wrong secondary voltage/current range. Set it to correct range (5A or 1A, 120V or 277V).

Power measurement does not work

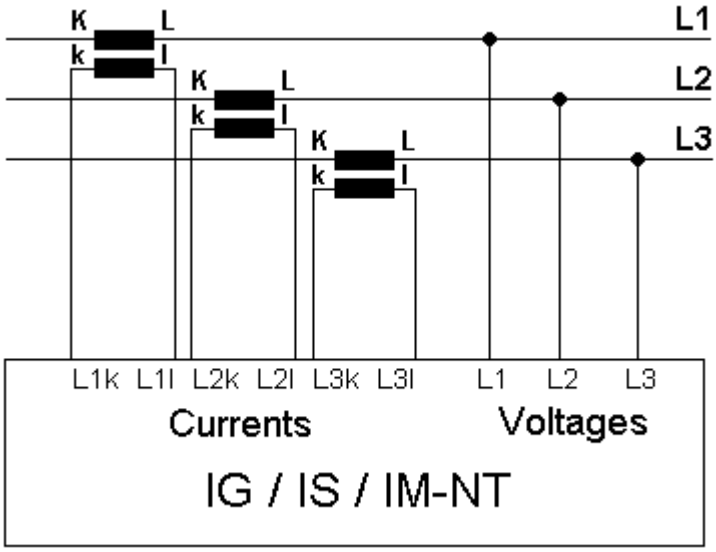
Problem:

It may happen that controller measures correct generator/mains/bus voltages and currents values, but active and reactive power values displayed by controller are not correct or even zero. Power Factor (PF) value is incorrect too and there is a big difference in PF between phases (e.g. phase L1 power factor is 0,9 and in phase L2 power factor is 0,2).

Solution:

Solution is to adjust CTs connection, it means changing polarity of CTs and/or swapping their order.

Correct voltage and current measurement connection:



Imagine that a generator is loaded with a load bank which burns 100 kW in each phase. Load bank Power Factor (PF) is 1. If power in each phase is 100 kW, total generator power (P_{TOT}) displayed by controller is 300 kW. Calculation is as follows:

$U_{L1}=U_{L2}=U_{L3}$= 400 V

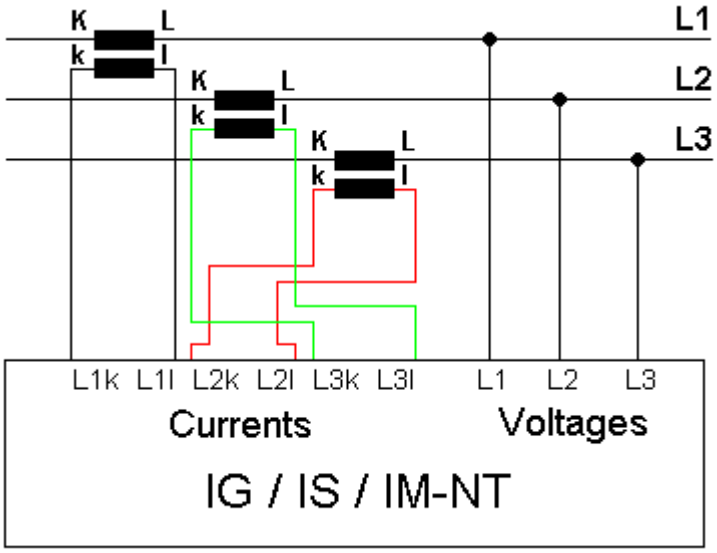
$I_{L1}=I_{L2}=I_{L3}$= 250 A

$PF_{L1}=PF_{L2}=PF_{L3}$ = 1

$P_{L1}=P_{L2}=P_{L3}= U_{L1}xI_{L1}xPF_{L1}$=400x250x1= 100 kW

$P_{TOT}=P_{L1}+P_{L2}+P_{L3}$= 100+100+100= **300 kW**

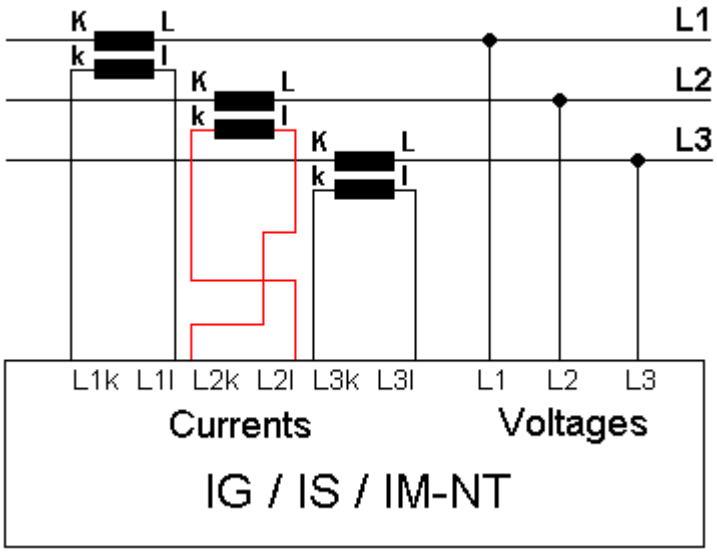
Example of incorrect connection with CTs swapped between phases L2 and L3:



In this case 100 kW is still burned in each load bank phase, but PF in phases L2 and L3 is not 1 from controller point of view. PF in phases L2 and L3 is -0,5 due to phase shift between voltages and currents which is caused by CTs swapping. The result is that total generator power displayed by controller is 0 kW. Calculation is as follows:

$U_{L1}=U_{L2}=U_{L3}$= 400 V
$I_{L1}=I_{L2}=I_{L3}$= 250 A
PF_{L1}=1
$PF_{L2}=PF_{L3}$= -0,5
P_{L1}= $U_{L1}xI_{L1}xPF_{L1}$=400x250x1= 100 kW
$P_{L2}=P_{L3}=U_{L2}xI_{L2}xPF_{L2}$= -50 kW
$P_{TOT}=P_{L1}+P_{L2}+P_{L3}$= 100+(-50)+(-50)= **0 kW**

Example of incorrect connection with wrong CT polarity in phase L2:



In this case 100 kW is still burned in each load bank phase, but PF in phase L2 is not 1 from controller point of view. PF in phase L2 is -1, because current goes in the opposite way due to wrong CT polarity. The result is that total generator power displayed by controller is 100 kW. Calculation is as follows:

$U_{L1}=U_{L2}=U_{L3}$= 400 V
$I_{L1}=I_{L2}=I_{L3}$= 250 A
$PF_{L1}=PF_{L3}$=1
PF_{L2}= -1
$P_{L1}=P_{L3}$= $U_{L1}xI_{L1}xPF_{L1}$=400x250x1= 100 kW
$P_{L2}=U_{L2}xI_{L2}xPF_{L2}$= 400x250x(-1)= -100 kW

$P_{TOT}=P_{L1}+P_{L2}+P_{L3}$= 100+(-100)+100= **100 kW**

Many different combinations of incorrect CTs connection are possible so check both, order of CTs and their polarity. Reactive power measurement is affected by incorrect CTs connection in similar way as active power measurement.

Other

SummerTime Mode causing time rollback and time desynchronization

Problem:

Situation: multiple controllers are used on CAN bus and some of them have FW 2.6.3 (IGS-NT-Std) or 2.9.1 (IM-NT) and others have older versions of FW. SummerTime Mode is active (i.e. it is not set to DISABLE). Controllers are not powered and time change is about to be done.

Example:

One controller with IGS-NT-Std FW 2.6.3 and one controller with IGS-NT-Std FW 2.6.1 are connected via CAN. Date is 27.10. 2013 and time is 2:59 am. SummerTime Mode is set to SUMMER (i.e. time change is active). Controllers are powered down and stay powered down for period longer than one hour (e.g. 8 hours). When powered back on time and SummerTime Mode changes rapidly causing bad time value and moreover causing desynchronization of the time between controllers (e.g. IGS-NT-Std 2.6.3 shows 2:05 am and IGS-NT-Std 2.6.1 shows 7:05 pm).

Solution:

All controllers FW need to be updated to the latest version to prevent this behavior. When all controllers are updated, SummerTime Mode works properly.

Note:

Note that this behavior occurs **only** when old and new versions are mixed. When only old versions are present and controllers are powered down, time change does not occur (due to previous error fixed in 2.6.3/2.9.1) but time is not desynchronized.

Wrn addr error occurs when updating to new FW

Problem:

Wrn addr error is issued. Controller address cannot be changed. (This may occur after changing CANnegotiation setpoint to AUT and restarting the controller or after update to the new FW version (e.g. IM-NT 2.9 to IM-NT 2.9.1) – the update may activate CANnegotiation.)

Solution:

This particular problem (Wrn addr) is caused by the function CANnegotiation and occurs only if there are controllers with the same CAN address and without CANnegotiation ability. This occurs only in specific case with specific hardware.

It is essential to check setpoints and write correct value in them. In this particular case please locate the setpoint CANnegotiation (in Comms settings) and change its state (there may be AUT or a number after update) to OFF mode. Then **power down and power up** the controller. The warning should not be displayed anymore.

Note:

Function CANnegotiation can be activated only when all controllers are able to perform this function. If there are controllers with and without CANnegotiation (e.g. IM-NT and IG-MINT), CANnegotiation must be switch OFF in all CANnegotiation capable controllers!

Statistic values window contains strange numbers upon start-up

Problem:

All NT controllers produced till March, 2007 (serial numbers 0703xxxx and lower) have undefined values in statistics. Controllers produced later have all statistics values set to initial value 0.

Solution:

Should you come across a controller with undefined statistic values, run InteliMonitor, go to menu Monitor, select Set statistics, and click on button “Clear all”. Wait until all numbers lose their bold form (writing in process) and close the window.

Alarms stays in Alarm list even though Fault reset was used to acknowledge them

Problem:

Fault reset was used to acknowledge active alarms displayed by controller, but alarms stayed in alarm list after they became inactive, because controller does not allow an alarm to be acknowledged by pressing the fault reset button while the alarm is still active. It is caused by setpoint **Engine protect**: *ResetActAlarms* setting to DISABLED. This is a new option which was not available in IG/IS classic – you can now disable resetting of alarms that are currently active by setting the setpoint to DISABLED (Marine authorities requirement).

Solution:

If you don't need this functionality, switch the setpoint to ENABLED, which is the mode compatible with IG/IS classic controllers.

No active call after some protection has been activated

Solution:

a) Setpoint that enables active calls for a particular protection type is not set to ENABLED. Check it in **Act. calls/SMS** setpoints group.
b) Setpoint **Act. calls/SMS**: *AcallCHx-Type* is set to a wrong option. E.g. it is set to SMS-GSM, while analog modem is actually connected. You have to change this setpoint to such option that matches used type of connection.
c) Phone number or e-mail address is wrong. Check the setting (**Act. calls/SMS**: *AcallCHx-Addr* setpoints), including the prefix codes for local phone calls or intercity calls.

Forgotten controller password

Solution:

a) For all users, except the user 0 = administrator, password can be reset by the administrator. If administrator is logged in, he can set password to any value for a particular user. Controller panel or PC can be used to do that:
Controller panel: log in as administrator (default user name of the administrator is U0), go to Users/Password in the menu and select user for which you intend to reset the password. You will see "Reset password" option on the screen, select it, press Enter to confirm your choice and press Esc to get back into the menu. Now that user has password set to "0" and it can be set to any value.
PC SW (InteliMonitor): log in as administrator (default user name of the administrator is U0), go to menu Monitor / Admin users. A window opens where you can set up access rights etc. Select the user for which you intend to reset its password and press the crossed lock icon in the upper left corner. You can also reset passwords for all users at once. Password is set to "0" and it can be set to any value.
b) If the highest (level 7) administrator password is lost, you need to provide your distributor this information: controller serial number and PasswordDecode number.
Serial number and PasswordDecode number are available in InteliMonitor in Monitor / Controller/Archive info... Both serial number and PasswordDecode number are available on controller Info screen 2. Hold Enter and push the Esc button to enter the screen on IS-Display, push the right arrow then to display information on IG-NT / IM-NT screen.

PID regulator doesn't work in the same way as in IS-CU

Solution:

a) If the PID regulator in internal PLC of the controller doesn't behave in the same as you were used to with the classic IS-CU controller, set the parameters 10 times higher than for the PID regulator in classic IS-CU.

MCB fail / GCB fail alarm is issued after switching controller on

Problem:

Breaker fail alarm is issued if a breaker feedback signal is not connected directly to a controller and controller receives information about breaker state after initial reading of its binary inputs. This happens if breaker feedback is evaluated in controller PLC or it is connected to controller via an extension module (standard or virtual).

Solution:

a) Connect breaker feedback signals directly to a controller binary input. Feedback signal is delayed if it is connected to an extension unit, using a virtual periphery or it is output of controller PLC logic. States of binary inputs are evaluated immediately after switching controller on. It takes some additional time to run PLC or establish remote communication via CAN (virtual periphery-SHBIN) or with a standard extension module (e.g. IGS-PTM). Breaker feedback is very important signal for correct controller function and it is strongly recommended to connect it directly to binary input of a controller itself.
b) Check if either breaker control signal logic (e.g. GCB close/open signal) or breaker feedback signal logic (e.g. GCB feedback signal) is set correctly (BI/BO option Inverted is set correctly).

How to …

Special applications

Setup your controller to work as the SSB application

SSB application is known from IG/IS classic controllers, but it is no more present among NT applications. So you have to modify behaviour of the SPtM application to achieve that. This type of application can be handled with IL-NT AMF controllers.
Start with the default SPtM archive and set the following setpoints in the **ProcessControl** group of setpoint:

- *Island enable* = YES (stand-by application needs to work in island when mains is gone)
- *ParallelEnable* = NO (no mains paralleling is allowed)
- *SynchroEnable* = NONE (no synchronizing is allowed)
- *MFStart enable* = YES (basic function of the SSB application – start upon mains failure)

Setup your controller to work as the SPM application

SPM application is known from IG/IS classic controllers, but it is no more present among NT applications. So you have to modify behaviour of the MINT application to achieve that. This type of application can be handled with IL-NT MRS controllers.
Start with the default MINT archive and follow these instructions:

- The controller with MINT, COX or Combi in MINT archive can work without Dongle LSM+PMS if all following conditions are fulfilled
  - The power management must be disabled (Pwr management = DISABLED) **and**
  - (SysLdCtrl PtM must be swithed to BASE LOAD and MCB feedback must be 1) **or** there is no CAN2 communication

  The conditions above allow user to use the following combinations without Dongle:

Pwr management	SysLdCtrl PtM	MCB feedback	CAN2 communication
DISABLED	BASE LOAD	1	YES
DISABLED	ANY	ANY	NO

  If the above conditions are fulfilled, there is no “Dongle incomp” message displayed in controller Alarm list. This message is normally displayed by controller with MINT application as the IGS-NT-LSM+PMS dongle is expected to be used for standard use of the MINT application. In this special case and providing the stated conditions, the message is suppressed to allow controller to work in the SPM mode.

List of Abbreviations

AMF	Auto Mains Failure (controller starts automatically on mains failure)
AI	Analog Input
AO	Analog Output
ATS	Automatic Transfer Switch (switches load to supplied bus (by mains or generators))
AVR	Automatic Voltage Regulator
BI	Binary Input
BO	Binary Output
BOC	Breaker Open & Cool-down - protection type (see application manual for details)
BTB	Bus-Tie Breaker
CAN1	CAN bus for ComAp extension modules (e.g. IGS-PTM) and engine ECU connection
CAN2	CAN bus for communication between ComAp controllers and communication modules connection (e.g. I-LB+)
COX	Application for Complex Systems where actions are taken by a PLC and controller only follows orders => needs an external driver (cox)
CT	Current Transformer
ECU	engine Electronic Control Unit
ESF	Engine Specific File
Forward synchronisation	Synchronisation of unloaded genset to mains (GCB closing process)
FMI	Failure Mode Identifier
GC	Graphical Characters - option for additional support of one "graphical" language
GCB	Generator Circuit Breaker
CHP	Combined Heat & Power - cogeneration application, usually with gas engine
I-AOUT8	Extension module with 8 AO
I-CB	Communication Bridge - interfaces IS, IG/IS-NT, ID controllers and non-standard engine ECU
IG-AVRi	IG Automatic Voltage Regulator interface
IG-EE	InteliGen for Electronic Engines (HW optimized for connection to an engine equipped with ECU)
IG-EEC	InteliGen EE controller with extended communication possibilities + switchable sensing ranges of AC voltages and currents
IG-IB	IG-Internet Bridge - for internet/ethernet communication
IGL-RA15	Indication panel with LEDs signalizing state of 15 BO
IG-NT	InteliGen New Technology gen-set controller
IG-NTC	InteliGen NT controller with extended communication possibilities + switchable sensing ranges of AC voltages and currents
IGS-NT-LSM+PMS	Dongle for IG-XX and IS-NT to enable Load Sharing and VAr sharing control loops and PMS
IGS-PTM	Extension module with 8 BI/BO, 4 AI and 1 AO
I-LB	Local Bridge – for direct and modem monitoring and control of multiple gen-sets
IM-NT	InteliMains New Technology - Mains supervision controller; the same controller with a different SW configuration can work as a bus-tie synchronizer
I-RB	Relay Board
IS-AIN8	Extension module with 8 AI.
IS-BIN8/16	Extension module with 8 BO and 16 BI.

IS-NT	InteliSys New technology gen-set controller
IS-NT-BB	InteliSys New Technology Basic Box (without display)
KWP2000	Key Word Protocol of Scania S6 unit (for engine diagnostics)
LAI	Logical Analog Inputs (card in GenConfig which is used to assign source signal to controller Logical Analog Input functions, e.g. Oil press)
LBI	Logical Binary Inputs (card in GenConfig which is used to assign source signal to controller Logical Binary Input functions, e.g. Sys Start/Stop)
LS	Load Sharing - analog load sharing line to interconnect gen-sets on site (for island parallel or mains parallel operation of multiple gen-sets); IG/IS/IM-NT controllers use digital Load Sharing via the CAN2 bus
LSM	Load Sharing Module
LT	Option for Low Temperature modification (display equipped with heating foil)
MCB	Mains Circuit Breaker
MGCB	Master Generator Circuit Breaker (sometimes used with multiple gen-sets in island parallel or mains parallel operation)
MINT	Multiple application with INTernal control loops - for multiple gen-sets in island parallel or mains parallel operation; Load Sharing and VAr Sharing controlled internally; PMS available
MP	Mains protection
MultIslOp	Multiple Island Operation (MCB is opened, GCB's are closed)
MultParOp	Multiple Parallel Operation (MCB is closed, GCB's are closed)
NPU	Mains protection relay (voltage, frequency, vector shift protections)
OC	Occurrence Count (number of fault occurrances transmitted in diagnostic frame from ECU)
OfL	Off load - protection type (see application manual for details)
PF	Power Factor
PGN	Parameter Group Number (refer to SAE J1939-71)
PMS	Power Management System - ensures optimization of running gen-sets on sites with multiple gen-sets; based on kW/kVA spinning reserve or on relative (%) load; no-master system ensures high reliability
Reverse synchronisation	Synchronisation of loaded genset to mains (MCB closing process)
RTC	Real Time Clock
SG	Speed Governor
SHAIN	Shared (virtual) Analog INput module
SHAOUT	Shared (virtual) Analog OUTput module
SHBIN	SHared (virtual) Binary INput module
SHBOUT	SHared (virtual) Binary OUTput module
Soft load	Generator soft loading according to Load ramp loop setting
Soft unload	Generator soft unloading according to Load ramp loop setting
SPI	Single Parallel Island application - for single gen-sets in parallel with mains or in island operation; suitable for CHP applications; no MCB control
SPM	Single Prime Mover application - for single gen-sets without mains
SPN	Suspect Parameter Number (refer to SAE J1939-71)
SPtM	Single Parallel to Mains application - for single gen-sets in parallel with mains or in island operation, with AMF support; both MCB and GCB controlled
SSB	Single Stand-By application - for single gen-sets with mains and break transfer to mains
VPIO	Virtual periphery I/O module – internal "SW wires" linking binary outputs to inputs
VS	VAr Sharing - ensures VAr sharing between gen-sets on site via the CAN2 bus (for island parallel or mains parallel operation of multiple gen-sets)
VT	Voltage Transformer
#	Setting of setpoints (with this character in front of them) is shared between

	controllers via intercontroller CAN2

List of Possible Events

Hint:
Be aware that it is possible to change alarm messages using Translator in GenConfig. Try to find an alarm text in the Trasnlator card if you can not find it on this list. Use Ctrl+F function to find an alarm text.
Check PLC functions Force protect setting and customized protections (see card Protections in GenConfig) to find alarm messages which are not listed below.

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
BIN 1-12[1]	A+H	Indication of error in communication with binary inputs extension module. Check if the unit with corresponding CAN address is - powered up - address of the module is set correctly (see Modules card in GenConfig and an extension module manual) - correctly connected and check connection of terminating resistors on the CAN1 bus (see IGS-NT Installation Guide, *External modules connection* chapter) - the CAN bus Low and High wires are not swapped To check module communication activity look at the Tx and Rx LEDs of the CAN bus port. Fast flashing means that communication is OK.
ANA 1-10[1]	A+H	Indication of error in communication with analog inputs extension module. Check if the unit with corresponding CAN address is - powered up - address of the module is set correctly (see Modules card in GenConfig and an extension module manual) - correctly connected and check connection of terminating resistors on the CAN1 bus (see IGS-NT Installation Guide, *External modules connection* chapter) - the CAN bus Low and High wires are not swapped To check module communication activity look at the Tx and Rx LEDs of the CAN bus port. Fast flashing means that communication is OK.
BOUT 1-12[1]	A+H	Indication of error in communication with binary outputs extension module. Check if the unit with corresponding CAN address is - powered up - address of the module is set correctly (see Modules card in GenConfig and an extension module manual) - correctly connected and check connection of terminating resistors on the CAN1 bus (see IGS-NT Installation Guide, *External modules connection* chapter) - the CAN bus Low and High wires are not swapped To check module communication activity look at the Tx and Rx LEDs of the CAN bus port. Fast flashing means that

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		communication is OK.
AOUT 1-4[1]	A+H	Indication of error in communication with analog outputs extension module. Check if the unit with corresponding CAN address is - powered up - address of the module is set correctly (see Modules card in GenConfig and an extension module manual) - correctly connected and check connection of terminating resistors on the CAN1 bus (see IGS-NT Installation Guide, *External modules connection* chapter) - the CAN bus Low and High wires are not swapped To check module communication activity look at the Tx and Rx LEDs of the CAN bus port. Fast flashing means that communication is OK.
ECU[1]	A+H	Indication of error in communication with ECU. Check if the ECU is: - correctly connected to the CAN1 port of the controller (see Comap Electronic Engines Support manual for information about ECU connection) - powered up - terminating resistors are properly connected - the CAN bus Low and High wires are not swapped
SHBIN 1-4[1]	A+H	Indication of error in communication with SHBOUT 1–4 module. Check that - one of the controllers on site is configured as a SOURCE controller (has SHBOUT (x) module configured) - the SOURCE controller is powered up - TARGET and SOURCE controllers are connected to the CAN2 bus and Tx and Rx LEDs of the CAN2 bus ports are flashing - the controllers can "see" each other – check CAN16/CAN32 values on the Power management screen (each controller is indicated by 1 on the position given by its address) - CAN2 bus connection is done according to the IGS-NT-Installation Guide, *Recommended CAN/RS485 connection* chapter.
SHAIN 1-4[1]	A+H	Indication of error in communication with SHAOUT 1–4 module. Check that - one of the controllers on site is configured as a SOURCE controller (has SHAOUT (x) module configured) - the SOURCE controller is powered up - TARGET and SOURCE controllers are connected to the CAN2 bus and Tx and Rx LEDs of the CAN2 bus ports are flashing - the controllers can "see" each other – check CAN16/CAN32 values on the Power management screen (each controller is indicated by 1 on the position given by its address)

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		- CAN2 bus connection is done according to the IGS-NT-Installation Guide, *Recommended CAN/RS485 connection* chapter.
SHBinCfgErr[1]	A	Shared Binary module configuration error – i.e. more than one source module (SHBOUT) were configured (on the CAN2 bus). Make sure that only one SHBOUT x module is configured in controllers.
SHAinCfgErr[1]	A	Shared Analog module configuration error – i.e. more than one source module (SHAOUT) were configured (on the CAN2 bus). Make sure that only one SHAOUT x module is configured in controllers.
PLC State 1[2]	A	PLC state 1 indication (for more information see description of Force protect PLC function)
PLC State 2[2]	A	PLC state 2 indication (for more information see description of Force protect PLC function)
PLC State 3[2]	A	PLC state 3 indication (for more information see description of Force protect PLC function)
PLC State 4[2]	A	PLC state 4 indication (for more information see description of Force protect PLC function)
ActCall Fail	A	Indication of failed Active call. Refer to an InteliCommunication Guide to check modem/internet connection and active call setup.
ECUDiagBlocked	A	Alarm is active when **Comms settings**: *ECU diag* = DISABLED. This setting means that ECU alarms are not displayed and considered by controller and this alarm is the setting notification.
Wrong config	A+H	Wrong controller configuration indication. Indicates that controller hardware doesn't support PLC used in configuration. To check it send the IDch and Dngl strings[3] from controller Info screen 2 and archive to your technical support.
RTCbatteryFlat	A	This warning message "RTCbatteryFlat" appears in Alarmlist when battery is close to be completely flat. If power supply cut comes when the RTC battery is flat, the statistic values, history and setpoints settings are lost. Send a controller to your distributor for battery exchange if the RTCbatteryFlat message is displayed[4].
Al/Hist. msg 1-16[5]	A+H	Al/Hist. msg 1-16 activity indication (Al/Hist. msg means Alarm/History message). Al/Hist. msg can be used as a customized message for additional protection configured to any controller internal value. See GenConfig manual - Protections.
Batt volt	A+H	Indication of battery voltage protection activity. This protection is based on **Analog protect**: *Batt >V*, *Batt <V*, and *Batt volt del* setpoints. Check if engine alternator or independent battery charger works properly.
EarthFaultCurr	A+H	Indication of Earth fault current protection activity. This protection is based on **Gener protect**: *EarthFaultCurr* and *EthFltCurr del* setpoints. Setpoint *EarthFltCurrCT* from **Basic settings** group of setpoints is related to this protection too.
Gen V unbal	A+H	Generator voltage unbalance alarm is based on **Gener protect**: *Gen V unbal* and *Gen V unb del* setpoints. The voltage unbalance is calculated as a maximum difference

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		between phase voltages.
Gen I unbal	A+H	Generator current asymmetry (unbalance) alarm is based on **Gener protect**: *Gen I unbal* and *Gen I unb del* setpoints. The current unbalance is calculated as a maximum difference between phase currents.
BusL I unbal	A+H	Left bus current asymmetry (unbalance) alarm is based on **Gener protect**: *BusL I unbal* and *BusL I unb del* setpoints. The current unbalance is calculated as a maximum difference between phase currents.
Mains V unbal	A+H	Mains voltage unbalance alarm is based on **Mains protect**: *Mains V unbal* and *MainsV unb del* setpoints. The voltage unbalance is calculated as a maximum difference between phase voltages.
Mains I unbal	A+H	Mains current asymmetry (unbalance) alarm is based on **Mains protect**: *Mains I unbal* and *Mains Iunb del* setpoints. The current unbalance is calculated as a maximum difference between phase currents.
Bus V unbal	A+H	Bus voltage unbalance alarm is based on **Gener protect (Bus protect)**: *Bus V unbal* and *Bus V unb del* setpoints. The voltage unbalance is calculated as a maximum difference between phase voltages.
BusL V unbal		Left bus voltage unbalance alarm is based on **BusL protect**: *BusL V unbal* and *BusL V unb del* setpoints. The voltage unbalance is calculated as a maximum difference between phase voltages.
BusR V unbal		Right bus voltage unbalance alarm is based on **BusR protect**: *BusR V unbal* and *BusR V unb del* setpoints. The voltage unbalance is calculated as a maximum difference between phase voltages.
Dongle incomp	A+H	Incompatible (usually missing) dongle indication. IGS-NT-LSM+PMS dongle (green one) is required if load sharing and power management functions are used in MINT, COX or COMBI application. Check a Reference Guide for information whether a dongle is required for requested functionality or not.
Incom. periph.	A+H	If the incompatible modules are used and the communication to this module cannot be established, this alarm and history event are recorded.
Emergency stop	A+H	Emergency stop activity indication. Check binary input with *Emergency stop* function.
CAN2 bus empty	A+H	This alarm is active if controller doesn't "see" any other controllers on the CAN2 bus. Alarm activation can be enabled/disabled using setpoint **Comm settings**: CAN2empt*Detect.* This setpoint should be set to DISABLED for single genset applications. Check Reg16/Reg32 strings to see which controllers are in the same group[18].
ChrgAlternFail	A+H	Charger fail detection. This alarm means that voltage on the D+ terminal is lower than 80% of controller power supply voltage and it means that battery is no longer charged. Check function of engine alternator or independent battery charger.
Sd Stop fail	A+H	Engine stop fail indication. Stop fail means that engine does not reach "still engine" state within **Engine params**: *Stop time.*

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		"Still engine" conditions: - Engine speed (RPM) = 0 and - AI: Oil press < *Starting POil* and - D+ terminal is not active and - BI: RunIndication 1 and 2 and 3 are not active and - Generator voltage < 15V (in all phases) and - Generator frequency = 0 Hz - if all these conditions are fulfilled, additional 2s delay is used to confirm "still engine" state.
Overspeed	A+H	Gen-set over speed alarm is based on **Engine protect**:*Overspeed* setpoint setting.
Underspeed	A+H	Genset under speed alarm indication. Under speed limit is based on **Engine params**:*Starting RPM* setting. This protection is activated after successful engine start if engine speed drops below value given by *Starting RPM* setpoint setting (for more information see *Engine starting procedures* description in a Reference Guide).
Pickup fail	A+H	Pickup fail indication. Pickup fail means loss of RPM signal in running state ("engine running" state is active). "Engine running" conditions: - Engine speed > **Engine params**: *Starting RPM* or - AI: Oil press > *Starting POil* or - D+ terminal active (this condition is used only if **Engine params:** *D+ function* = ENABLED) or - BI: RunIndication 1 or 2 or 3 is active or - Generator voltage > 15V (in any phase) See *Speed pick-up input* section in the Technical data chapter in IGS-NT-x.y.-Installation Guide manual for information about requested pick-up signal parametres.
Sd BatteryFlat	A+H	Alarm is activated if controller "wakes up" after a start attempt which caused battery voltage drop (voltage drop below 6V) and consequently controller switch-off. ComAp I-LBA module may help to solve this problem, for information about this module see IGS-NT-x.y.-Installation Guide manual.
WrnServiceTime	A+H	This alarm is acivated when at least one of controller count down service timers **Engine protect**:*Service time X* has reached zero. It is necessary to set again a non-zero value to a corresponding setpoint to reset this alarm.
Not lubricated	A	This Alarm list message is active until the first lubrication cycle has been finished. See *Engine states* chapter in IGS-NT-x.y-Reference Guide.
Start fail	A+H	This alarm is issued if genset start-up fails. It means that several crank attempts has been done (number of attempts is given by **Engine params**: *Crank attempts*) and engine did not start. For more information see *Engine starting procedures* chapter in IGS-NT-x.y-Reference Guide.
Start blocking	A	This message means that a binary input with Startblocking function is active and engine start is blocked. If active, NotReady state is shown on the controller screen and the message appears in the Alarm list. As soon as input is deactivated, engine start is enabled again.
Wrn CylTemp1-32	A+H	Warning protection on AI Cylinder temperature 1-32 is

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		active. Check corresponding setpoints in the **Engine protect** group.
Wrn MCB fail	A+H	MCB failure was detected. See *Circuit breakers operation sequence, GCB/MCB fail detection* chapter in IGS-NT-x.y-Reference Guide.
Stp GCB fail	A+H	GCB failure was detected. See *Circuit breakers operation sequence, GCB/MCB fail detection* chapter in IGS-NT-x.y-Reference Guide.
Wrn BTB fail	A+H	BTB failure was detected. See *Circuit breakers operation sequence, GCB/MCB fail detection* chapter in IGS-NT-x.y-Reference Guide. It applies to BTB breaker too.
Wrn MGCB fail		MGCB failure was detected. See *Circuit breakers operation sequence, GCB/MCB fail detection* chapter in IGS-NT-x.y-Reference Guide. It applies to MGCB breaker too.
Sd Oil press B	A+H	Engine shut-down was activated by binary input with “Oil press” function (see LBI card in GenConfig for information about source signal for this function).
Wrn RSync fail	A+H	Reverse synchronization failure indication, genset or group of gensets was not synchronized to mains within **Sync/Load ctrl**:*Sync timeout* time. Check setting of setpoints in the **Sync/Load ctrl** and **Volt/PF ctrl** groups. Frequency regulation loop, Angle regulation loop and Voltage regulation loop are active during synchronisation and you may need to adjust their setting. Actual state of synchronization is visible on the controller measurement screen with synchroscope where speed and voltage regulator's outputs, slip frequency and generator and mains voltages can be observed during the synchronization process.
Stp Sync fail	A+H	Synchronization failure indication (alarm Sync timeout is active), gen-set or group of gensets was not synchronized to mains/bus within **Sync/Load ctrl**:*Sync timeout* time. Check setting of setpoints in the **Sync/Load ctrl** and **Volt/PF ctrl** groups. Frequency regulation loop, Angle regulation loop and Voltage regulation loop are active during synchronisation and you may need to adjust their setting. Actual state of synchronization is visible on the controller measurement screen with synchroscope where speed and voltage regulators' outputs, slip frequency and generator and mains/bus voltages can be observed during the synchronization process.
Wrn Sync fail	A+H	Synchronization failure indication (alarm Sync timeout is active), gen-set or group of gensets was not synchronized to mains/bus within **Sync/Load ctrl**:*Sync timeout* time. Check setting of setpoints in the **Sync/Load ctrl** and **Volt/PF ctrl** groups. Frequency regulation loop, Angle regulation loop and Voltage regulation loop are active during synchronisation and you may need to adjust their setting. Actual state of synchronization is visible on the controller measurement screen with synchroscope where speed and

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		voltage regulators' outputs, slip frequency and generator and mains/bus voltages can be observed during the synchronization process.
BOC L1, L2 or L3 under	A+H	Generator L1, L2 or L3 voltage was under the *Gen <V BOC* limit for *Gen V del* time. Undervoltage protections are based on **Gener protect**: *Gen <V BOC* and *Gen V del* setpoints. This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL. [19]
BOC L1, L2 or L3 over	A+H	Generator L1, L2 or L3 voltage was over the *Gen >V BOC* limit for *Gen V del* time. Overvoltage protections are based on **Gener protect**: *Gen >V BOC* and *Gen V del* setpoints. This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL. [19]
Sd L1, L2 or L3 over	A+H	Generator L1, L2 or L3 voltage was over the *Gen >V SD* limit for *Gen V del* time. Overvoltage protections are based on **Gener protect**: *Gen >V SD* and *Gen V del* setpoints. This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL. [19]
BOC L12, L23 or L31 under	A+H	Generator L12, L23 or L31 voltage was under the *Gen <V BOC* limit for *Gen V del* time.. Undervoltage protections are based on **Gener protect**: *Gen <V BOC* and *Gen V del* setpoints. This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE. [19]
BOC L12, L23 or L31 over	A+H	Generator L12, L23 or L31 voltage was over the *Gen >V BOC* limit for *Gen V del* time. Overvoltage protections are based on **Gener protect**: *Gen >V BOC* and *Gen V del* setpoints. This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE. [19]
Sd L12, L23 or L31 over	A+H	Generator L12, L23 or L31 voltage was over the *Gen >V SD* limit for *Gen V del* time. Overvoltage protections are based on **Gener protect**: *Gen >V SD* and *Gen V del* setpoints. This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE. [19]
BOC fgen under	A+H	Generator frequency was under the *Gen <f* limit for *Gen f del* time. Under frequency protection is based on **Gener protect**: *Gen <f* and *Gen f del* setpoints. [20]
BOC fgen over	A+H	Generator frequency was over the *Gen >f* limit for *Gen f del* time. Over frequency protection is based on **Gener protect**: *Gen <f* and *Gen f del* setpoints. [20]
BOC ReversePwr	A+H	This alarm is issued by the reverse power protection. This protection is based on **Gener protect**: *Reverse power* and *ReversePwr del* setpoints. This alarm means that either engine speed/power control does not work properly or generator current transformers (CT's) are connected in a wrong way. [20]
MP L1, L2 or L3 under	A+H	Mains L1, L2 or L3 voltage was under the *Mains <V MP* limit for *Mains V del* time. Undervoltage protections are

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		based on **Mains protect**: *Mains <V MP* and *Mains V del* setpoints. This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL.
MP L1, L2 or L3 over	A+H	Mains L1, L2 or L3 voltage was over the *Mains >V MP* limit for *Mains V del* time. Overvoltage protections are based on **Mains protect**: *Mains >V MP* and *Mains V del* setpoints. This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL.
MP L12, L23 or L31 under	A+H	Mains L12, L23 or L31 voltage was under the *Mains <V MP* limit for *Mains V del* time. Undervoltage protections are based on **Mains protect**: *Mains <V MP* and *Mains V del* setpoints. This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE.
MP L12, L23 or L31 over	A+H	Mains L12, L23 or L31 voltage was over the *Mains >V MP* limit for *Mains V del* time. Overvoltage protections are based on **Mains protect**: *Mains >V MP* and *Mains V del* setpoints. This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE.
Mains Avg x >V	A+H	If the value of 10 min. average mains voltage of any phase (*Mains Avg V1, Mains Avg V2, Mains Avg V3)* exceed value given by setpoint *Mains Avg >V MP* (*Mains protect* group) the MCB is opened and message *Mains Avg x >V* appears in alarm list and history record. BO *Common MP* is activated (*x indicates number of phase*).
MP fmns under	A+H	Mains frequency was under the *Mains <f* limit for *Mains f del* time. Under frequency protection is based on **Mains protect**: *Mains <f* and *Mains f del* setpoints.
MP fmns over	A+H	Mains frequency was over the *Mains >f* limit for *Mains f del* time. Over frequency protection is based on **Mains protect**: *Mains >f* and *Mains f del* setpoints.
ROCOF	H	If measured value of df/dt (mains frequency) exceed *ROCOF df/dt* (setpoint in *Mains protect* group), ROCOF protection is activated. ROCOF protection trips mains circuit breaker (MCB). The message *ROCOF* is writen in history of controller. Value of df/dt is evaluated from mains voltage.
BusL L1, L2 or L3 under	H	Left bus L1,L2 or L3 voltage was under the *BusLeft <V* limit for the *BusLeft V del* time. Information about that is recorded into controller history. Setpoint **BusL protect**: *BusL Volt prot* has to be set to ENABLED if healthy bus voltage detection and history record are requested. Voltage has to be over the *BusLeft <V* limit if BTB synchronisation should be started, because the *BusLeft <V* setpoint is used for healthy bus detection (this condition applies only if *BusL Volt prot* is set to ENABLED). This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL.
BusL L1, L2 or L3 over	H	Left bus L1, L2 or L3 voltage was over the *BusLeft >V* limit for the *BusLeft V del* time. Information about that is

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		recorded into controller history. Setpoint **BusL protect**: *BusL Volt prot* has to be set to ENABLED if healthy bus voltage detection and history record are requested. Voltage has to be below the *BusLeft >V* limit if BTB synchronisation should be started, because the *BusLeft >V* setpoint is used for healthy bus detection (this condition applies only if *BusL Volt prot* is set to ENABLED). This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL.
BusL L12, L23 or L31 under	H	Left bus L12, L23 or L31 voltage was under the *BusLeft <V* limit for the *BusLeft V del* time. Information about that is recorded into controller history. Setpoint **BusL protect**: *BusL Volt prot* has to be set to ENABLED if healthy bus voltage detection and history record are requested. Voltage has to be over the *BusLeft <V* limit if BTB synchronisation should be started, because the *BusLeft <V* setpoint is used for healthy bus detection (this condition applies only if *BusL Volt prot* is set to ENABLED).. This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE.
BusL L12, L23 or L31 over	H	Left bus L12, L23 or L31 voltage was over the *BusLeft >V* limit for the *BusLeft V del* time. Information about that is recorded into controller history. Setpoint **BusL protect**: *BusL Volt prot* has to be set to ENABLED if healthy bus voltage detection and history record are requested. Voltage has to be below the *BusLeft >V* limit if BTB synchronisation should be started, because the *BusLeft >V* setpoint is used for healthy bus detection (this condition applies only if *BusL Volt prot* is set to ENABLED). This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE.
BusR L1, L2 or L3 under	H	Right bus L1,L2 or L3 voltage was under the *BusRight <V* limit for the *BusRight V del* time. Information about that is recorded into controller history. Setpoint **BusR protect**: *BusR Volt prot* has to be set to ENABLED if healthy bus voltage detection and history record are requested. Voltage has to be over the *BusRight <V* limit if BTB synchronisation should be started, because the *BusRight <V* setpoint is used for healthy bus detection (this condition applies only if *BusR Volt prot* is set to ENABLED). This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL.
BusR L1, L2 or L3 over	H	Right bus L1, L2 or L3 voltage was over the *BusRight >V* limit for the *BusRight V del* time. Information about that is recorded into controller history. Setpoint **BusR protect**: *BusR Volt prot* has to be set to ENABLED if healthy bus voltage detection and history

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		record are requested. Voltage has to be below the *BusRight >V* limit if BTB synchronisation should be started, because the *BusRight >V* setpoint is used for healthy bus detection (this condition applies only if *BusR Volt prot* is set to ENABLED). This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL.
BusR L12, L23 or L31 under	H	Right bus L12, L23 or L31 voltage was under the *BusRight <V* limit for the *BusRight V del* time. Information about that is recorded into controller history. Setpoint **BusR protect**: *BusR Volt prot* has to be set to ENABLED if healthy bus voltage detection and history record are requested. Voltage has to be over the *BusRight <V* limit if BTB synchronisation should be started, because the *BusRight <V* setpoint is used for healthy bus detection (this condition applies only if *BusR Volt prot* is set to ENABLED).. This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE.
BusR L12, L23 or L31 over	H	Right bus L12, L23 or L31 voltage was over the *BusRight >V* limit for the *BusRight V del* time. Information about that is recorded into controller history. Setpoint **BusR protect**: *BusR Volt prot* has to be set to ENABLED if healthy bus voltage detection and history record are requested. Voltage has to be below the *BusRight >V* limit if BTB synchronisation should be started, because the *BusRight >V* setpoint is used for healthy bus detection (this condition applies only if *BusR Volt prot* is set to ENABLED). This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE.
BusL f under	H	Left bus frequency was under the *BusLeft <f* limit for *BusLeft f del* time. Under frequency protection is based on **BusL protect**: *BusLeft <f* and *BusLeft f del* setpoints.
BusL f over	H	Left bus frequency was over the *BusLeft >f* limit for *BusLeft f del* time. Over frequency protection is based on **BusL protect**: *BusLeft >f* and *BusLeft f del* setpoints.
BusR f under	H	Right bus frequency was under the *BusRight <f* limit for *BusRight f del* time. Under frequency protection is based on **BusR protect**: *BusRight <f* and *BusRight f del* setpoints.
BusR f over	H	Right bus frequency was over the *BusRight >f* limit for *BusRight f del* time. Over frequency protection is based on **BusR protect**: *BusRight >f* and *BusRight f del* setpoints.
Vb L1, L2 or L3 under	H	Bus L1, L2 or L3 voltage was under the *Bus < Hst* limit for *Bus V del* time. Undervoltage protections are based on **Bus protect**: *Bus < Hst* and *Bus V del* setpoints. This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL.
Vb L1, L2 or L3 over	H	Bus L1, L2 or L3 voltage was over the *Bus > Hst* limit for *Bus V del* time. Overvoltage protections are based on **Bus**

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		protect: *Bus > Hst* and *Bus V del* setpoints. This alarm is issued if voltage protections are based on phase to neutral voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-NEUTRAL.
Vb L12, L23 or L31 under	H	Bus L12, L23 or L31 voltage was under the *Bus < Hst* limit for *Bus V del* time. Undervoltage protections are based on **Bus protect**: *Bus < Hst* and *Bus V del* setpoints. This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE.
Vb L12, L23 or L31 under	H	Bus L12, L23 or L31 voltage was over the *Bus > Hst* limit for *Bus V del* time. Overvoltage protections are based on **Bus protect**: *Bus > Hst* and *Bus V del* setpoints. This alarm is issued if voltage protections are based on phase to phase voltages. It means that **Basic settings**: *FixVoltProtSel* is set to PHASE-PHASE.
f bus under	H	Bus frequency was under the *Bus <f* limit for *Bus f del* time. Under frequency protection is based on **Bus protect**: *Bus <f* and *Bus f del* setpoints.
f bus over	H	Bus frequency was over the *Bus >f* limit for *Bus f del* time. Over frequency protection is based on **Bus protect**: *Bus >f* and *Bus f del* setpoints.
Bus meas error	A+H	Bus measurement error is issued if bus voltage is out of limits. For details see description of the **Gener protect**:*BusMeasError* setpoint in IGS-NT-x.y-Reference Guide.
OfL StartBlck	A+H	This alarm indicates wrong setpoints setting that disables engine start or load takeover. Incorrect combination of **ProcessControl**: *Island enable; ParallelEnable; Synchro enable; MF start enable* setpoints setting is the reason why this alarm is issued. See *AUT mode* section of the *OFF-MAN-AUT mode* chapter in IGS-NT-x.y-Reference Guide for SPTM, SPI or COMBI application.
OperConflict	A	Alarm alerts to conflict of settings required behavior. It can occur in these cases: - Function MF (MainsFail) want to start gen-set(s), but Insland mode is Disabled (in AUT or TEST mode) - Parallel and Island mode are Disabled (in other mode than OFF) - Parallel is Enabled, but Synchronisation is Disabled (NONE) - in AUT mode This alarm indication is implemented in IGS/M-NT 3.1 and higher. (it replaces alarm “OfL StartBlck”)
StartBlck	A+H	This alarm indicates wrong setpoints setting that disables start of gensets. Incorrect combination of **ProcessControl**: *Island enable; ParallelEnable; Synchro enable; MF start enable* setpoints setting is the reason why this alarm is issued. See *OFF-MAN-AUT mode* chapter in IM-NT-MCB-MGCB Reference Guide.
BOC IDMT	A+H	Indicates current IDMT protection activation. Current IDMT protection is inverse definite minimum time protection which is based on the generator current. Protection

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		reaction time depends on overcurrent value. High overcurrent means short reaction time whereas low overcurrent means longer reaction time. Protection is based on setpoints **Generator protect**: *2Inom del* and **Basic settings**: *Nomin current.*
MPR Imains IDMT	A+H	Indicates current IDMT protection activation. Current IDMT protection is inverse definite minimum time protection which is based on the mains current. Protection reaction time depends on overcurrent value. High overcurrent means short reaction time whereas low overcurrent means longer reaction time. This protection is active if the *Mns2Inom prot* setpoint is set to ENABLED. Protection is based on setpoints **Mains protect**: *Mains2Inom del* and **Basic settings**: *Nomin current.*
BOR IbusL IDMT	A+H	Indicates current IDMT protection activation. Current IDMT protection is inverse definite minimum time protection which is based on the left bus current. Protection reaction time depends on overcurrent value. High overcurrent means short reaction time whereas low overcurrent means longer reaction time. This protection is active if the *BusL2Inom prot* setpoint is set to ENABLED. Protection is based on setpoints **BusL protect**: *BusL2Inom del* and **Basic settings**: *Nomin current.*
BOC ShortCurr	A+H	Generator short current protection was activated. Generator current was over **Generator protect**: *Ishort* level for *Ishort del.* time.
BOC Overload	A+H	Indicates overload IDMT protection activation. Overload IDMT protection is inverse definite minimum time protection which is based on the generator power. Protection reaction time depends on generator power value. High generator overload means short reaction time whereas low generator overload means longer reaction time. Protection is based on setpoints **Generator protect**: *OverldStrtEval* and *2POverldStEvDel.*
MPR Pmains IDMT	A+H	Indicates overload IDMT protection activation. Overload IDMT protection is inverse definite minimum time protection which is based on the mains power. Protection reaction time depends on mains power value. High mains overload means short reaction time whereas low mains overload means longer reaction time. This protection is active if the *Mns2POvrldProt* setpoint is set to ENABLED. Protection is based on setpoints **Mains protect**: *OverldStrtEval* and *2POverldStEvDel.*
BOR PbusL IDMT	A+H	Indicates overload IDMT protection activation. Overload IDMT protection is inverse definite minimum time protection which is based on the left bus power. Protection reaction time depends on the left bus power value. High left bus overload means short reaction time whereas low left bus overload means longer reaction time. This protection is active if the *BusL2POvrldProt* setpoint is set to ENABLED. Protection is based on setpoints **BusL protect**: *OverldStrtEval* and *2POverldStEvDel.*
BOC NCB fail	A+H	NCB fail is detected if the *NeutralCB fdb* input doesn't

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		follow *Neutral CB C/O* output within 400 ms.
Wrn BadPwrCfg	A+H	Power format is set differently in controllers which are part of the same control group. Check Power formats setting in GenConfig on the Miscellaneous card (available in the Advanced mode only).[21]
WrnTstOnLdFail	A+H	This alarm is issued if the Test on load function is activated (by closing corresponding BI) and genset is not able to take over mains load completely (mains import = 0) within the **Sync/Load ctrl**: *Load ramp* time. Message "WrnTstOnLdFail" is recorded into controller history in case of this failure. It is either necessary to extend the *Load ramp* time or check engine speed regulation.[20]
Wrn SpdRegLim	A+H	This alarm indicates that controller Speed governor output has reached its limit. Warning is issued if Speed governor output stays close to one of the limit values for more than 2 seconds. Close to one of the limits means that Speed governor output value is within *SpeedGovLowLim*+0,2V range or *SpeedGovHiLim*-0,2V range. This alarm gives you information that engine speed governor is either connected in a wrong way or one of the speed control related regulation loops[6] is set in a wrong way. Warning is blocked if binary output functions SPEED up and SPEED down are configured. Refer also to *Sync/load control adjustment* chapter in an IGS-NT-x.y-Reference Guide.
Wrn VoltRegLim	A+H	This alarm indicates that controller AVRi output has reached its limit. Warning is issued if the AVRi output stays close to 0% or 100% limit for more than 2 seconds. Close to limit means that AVRi output value is either <2% or >98%. This alarm gives you information that generator voltage regulator is either connected in a wrong way or one of the voltage control related regulation loops[7] is set in a wrong way. Warning is blocked if binary output functions AVR up or AVR down are configured. Refer also to *Volt/PF control adjustment* chapter in an IGS-NT-x.y-Reference Guide.
G L neg[8]	A	Generator phase is inverted. Check generator phases connection, one of generator phases is connected the other way round (swap generator coil leads connection).
G ph+L neg[8]	A	Wrong generator phases sequence[14], additionally one phase is inverted.
G ph opposed[8]	A	Wrong generator phases sequence[14]
M L neg[9]	A	Mains phase is inverted. Check mains transformer phases connection, one of transformer phases is connected the other way round (swap transformer coil leads connection).
M ph+L neg[9]	A	Wrong mains phases sequence[14], additionally one phase is inverted
M ph opposed[9]	A	Wrong mains phases sequence[14]
B L neg[13]	A	Bus phase is inverted[22]
B ph+L neg[13]	A	Wrong bus phases sequence[14], additionally one phase is

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		inverted
B ph opposed[13]	A	Wrong bus phases sequence[14]
BL L neg[12]	A	Left bus phase is inverted[22]
BL ph+L neg[12]	A	Wrong left bus phases sequence[14], additionally one phase is inverted
BL ph opposed[12]	A	Wrong left bus phases sequence[14]
BR L neg[13]	A	Right bus phase is inverted[22]
BR ph+L neg[13]	A	Wrong right bus phases sequence[14], additionally one phase is inverted
BR ph opposed[13]	A	Wrong right bus phases sequence[14]
hist PLC 1-4	H	Default message which indicates activity of PLC functions Force Hist. 1-4. [2]
Fault reset	H	Indication of the Fault reset function activation. Fault reset function can be activated using the Fault reset button, binary input with FaultResButton function, Modbus or via remote communication (InteliMonitor).
ActCallCH1-OK, CH2-OK, CH3-OK	H	Indication of successful active call 1-3.
ActCallCH1Fail, CH2Fail, CH3Fail	A+H	Indication of unsuccessful active call 1-3. See Inteli Communication Guide for information about active calls. See an IGS-NT-x.y-Reference Guide for description of setpoints which are part of the **Act.calls/SMS** group and are used for active call setup.
Switched On	H	Controller was switched on.
Watchdog	H	Indication of internal watchdog. Send controller archive with history records to ComAp for investigation.
System	H	These messages may be recorded as *System* reasons: Firmware prog.error (controller programming error) *Disp.error* (problem in communication with controller display) *RTC battery flat* (see information about alarm RTCbatteryFlat in this list) *SetpointCS err* (setpoint setting error)[15] *StatisticCS err* (statistics value error) [16] Wrong config (wrong configuration was uploaded into a controller) *Power Fail* (controller power supply voltage dropped below 8V) [17]
System Log	H	This history record gives you information that controller history was deleted using the Clear History function in GenConfig. This function is part of the Options toolbar.
SetpointChange	H	Setpoint change indication in controller history. History record contains communication object number of a setpoint which was changed[10]
Password set	H	Controller password was set
Password chng	H	Controller password was changed
PassInsertBlck	A	Break through password function can be ENABLED/DISABLED from the password management window in InteliMonitor (initial status is DISABLED). Warning "*PassInsertBlck*" appears in alarm list when controller is blocked.It is not allowed to insert the password in case that controller is blocked. There is information that

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		controller is blocked for next password attempt and time remaining till the end of blocation instead of password input window at the terminal screen. The controller is locked for 5 minutes when the password is 6 times wrong entered (in case of next 6 wrong attempts (correct password was not inserted at all) for 30, 60, 120, 240 minutes). *Incorrect password* message appears in the history of the controller when the invalid password is used ("System Log | Incorrect password)
Incorrect password	H	Read information about alarm *PassInsertBlck.*
AccessCodeSet	H	Controller access code was set
AccessCodeChng	H	Controller access code was changed
Admin action	H	This history record means that user administration changes were done[11]. Only User 0 (Administrator) is allowed to do such changes. These events can be recorded as Admin action record: Password reset Access rights changed Alias changed
Terminal	H	External terminal was either connected or disconnected
BinaryUnstable	H	Unstable binary input, this problem is usually caused by floating binary input ground. Check controller grounding to fix the problem.
ForceValue	H	Indication of any configured ForceValue state. Force value ON and OFF records are done.
TimeModeChange	H	Indication of TimeModeChange (summer/winter). Setpoint **Date/Time**: *#SummerTimeMod* is used to do time mode changes.
GroupsLinked	H	This history record means that two groups of gensets were connected together, binary input function *GroupLink* is used for the state indication. Setpoints **Pwr management**: *GroupLinkLeft* and *GroupLinkRight* gives you information which groups of gensets are in parallel if binary input function *GroupLink* is active.
GroupsUnlinked	H	Binary input function *GroupLink* was deactivated. It means that two groups of gensets, which were working in parallel, were disconnected from each other.
Time stamp	H	Regular Time stamp record. See setpoints **Date/Time**:*Time stamp act* and *Time stamp per*.
Gen Peak start	H	Indication of genset start by automatic Peak start/stop function. See setpoints **ProcessControl**: *PeakLevelStart*, *PeakLevelStop* and *PeakAutS/S del* for information about this function.
Gen Peak stop	H	Indication of genset stop by automatic Peak start/stop function. See setpoints **ProcessControl**: *PeakLevelStart*, *PeakLevelStop* and *PeakAutS/S del* for information about this function.
Gen PMS start	H	Genset was started by Power Management
Gen PMS stop	H	Genset was stopped by Power Management
Overload	H	Genset overload protection was activated. See setpoints **Gener protect**: *OverldStrtEval* and *2POverldStEvDel.* Be aware that this protection is based on **Basic settings**: *Nominal power* setpoint setting.
Gen start	H	Indication of genset start using the Start button

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
Gen stop	H	Indication of genset stop using the Stop button
Gen MF start	H	Indication of genset start by the AMF function
Gen MF stop	H	Indication of genset stop by the AMF function
Gen Rem start	H	Indication of genset start using the Rem start/stop binary input
Gen Rem stop	H	Indication of Gen-set stop using the Rem start/stop binary input
Load Shed	H	Load Shedding function was activated and corresponding LdShed stage x output was closed. See description of setpoints in the **Load shedding** group of setpoints.
Load Reconnect	H	Load Shedding function was deactivated and corresponding LdShed stage x output was opened. See description of setpoints in the **Load shedding** group of setpoints.
VectorShift	H	Indication of VectorShift protection activation. See setpoints **Mains protect**:*VectorS prot* and *VectorS limit*.
Other CB trip	H	Other CB on bus was tripped. This information is available for breakers which are controlled by a ComAp controller (IG/IS-NT or IM-NT).
GCB opened	H	GCB was opened
GCB closed	H	GCB was closed
MCB opened	H	MCB was opened
MCB opened ext	H	MCB was opened externally
MCB closed	H	MCB was closed
MGCB opened	H	MGCB was opened
MGCB closed	H	MGCB was closed
BTB opened	H	BTB was opened
BTB opened ext	H	BTB was opened externally
BTB closed	H	BTB was closed
SyncStarted	H	Forward synchronization was started
RevSyncStarted	H	Reverse synchronization was started
Ready	H	Genset is ready to be started
Idle run	H	Engine was started (“engine started” conditions were fulfilled) and engine speed and generator voltage goes up to nominal values during the Idle run state.
Running	H	Genset is running and GCB can be closed or synchronisation started.
Warming	H	Indication of Warming function activation. In case of operation in parallel with mains is genset load reduced to *Warming load* level. For more information about this function see setpoints **Engine params:** *Warming load, Warming temp, Max warm time.*
Soft load	H	Genset load is increased according to **Sync/Load ctrl**: *Load ramp*, *Load gain*, *Load int, RampStartLevel* setpoints setting.
Loaded	H	Genset is loaded
Soft unload	H	Genset load is decreased according to **Sync/Load ctrl**: *Load ramp*, *Load gain* and *Load int* setpoints setting. Setpoints **Sync/Load ctrl**: *GCB open level* and *GCB open del* are related to genset unloading too.
Cooling	H	Engine is cooling down
Emerg man	H	Emerg. manual binary input function is active
Not ready	H	Genset is not ready to start. Controller is either in OFF

IGS-NT Alarm/History record	Alarm/ History Appearance	Description
		mode or any 2nd level alarm is in controller alarm list.
ExcitationON/ ExcitationOFF	H	It indicates activation/deactivation of excitation in case of configuration the SUS sequence function.
Wrn SUSminPwr	A+H	It indicates that require power from the gen-sets with activated LBO:ReadyToExcite was not achieved (require power is set by setpoint #SUS min power).
SUS seq blck	A	Alarm indicates that SUS sequence is required, but setpoint Gear teeth is equal 0. (SUS sequence require pick-up sensor for correct function).

[1] This alarm may be displayed as Wrn or Sd alarm type. Alarm type depends on *Protection upon module failure* setting in Modules card in GenConfig. Available settings are: No Protection, Warning and Shutdown.

[2] See setting of Force Protect functions on the PLC card in GenConfig to find out what PLC State x texts were changed to.

[3] Hold Enter and push Esc to enter the Info screen 1. Push the right arrow → to enter Info screen 2 to read IDch and Dngl strings or controller serial number and Password Decode number (Pwd.Dec.).

[4] You can exchange battery by yourself, but **ComAp would not be responsible for controller damage caused by battery exchange then.** See our *AS08 – Battery exchange process r1* manual for instructions, if you would like to exchange controller battery by yourself.

[5] See Al./Hist. msg column on Protections card in GenConfig to see customized alarm messages which are related to configurable protections.

[6] Speed control related regulation loops are part of the **Sync/Load ctrl** group of setpoints:
Frequency regulation loop: *Freq gain, Freq int* setpoints
Angle regulation loop: *Angle gain* setpoint
Load regulation loop: *Load ramp, Load gain, Load int* setpoints
Load sharing loop: *LS gain, LS int* setpoints

[7] Voltage control related regulation loops are part of the **Volt/PF ctrl** group of setpoints:
Voltage regulation loop: *Voltage gain, Voltage int* setpoints
Power Factor regulation loop: *PF gain, PF int* setpoints
VAr sharing regulation loop: *VS gain, VS int* setpoints

[8] Alarm is related to Generator voltage terminals connection

[9] Alarm is related to Mains (Bus) voltage terminals connection

[10] In GenConfig go to File - Generate Cfg Image - Generate Cfg Image (Comm.objects) to obtain the communication objects list

[11] In InteliMonitor go to Monitor - Admin Users to do any user administration changes

[12] Alarm is related to Mains (Bus-L) voltage terminals connection

[13] Alarm is related to Bus (Bus-R) voltage terminals connection

[14] Wrong phases sequence means that e.g. generator/Mains voltages rotation is counter clockwise. Typical reason is that two phases are swapped, e.g. phase L2 is connected to L3 controller voltage terminal and phase L3 is connected to L2 controller voltage terminal.

[15] Adjust setting of incorrectly set setpoints to get rid of the alarm. Use InteliMonitor to do that, setpoints with out of range/incorrect setting are marked with yellow background

[16] Use InteliMonitor to adjust incorrectly set statistics value. Go to Monitor and Set statistics… to do that.

[17] It happens if 12V battery is used as power supply and voltage drops during engine starting (due to high starter current). Use the I-LBA module to avoid this problem.

[18] See the How to check that communication between controllers works chapter for more information.

19 Check if generator voltage regulation works properly if this alarm is issued. See *Volt/PF control adjustment* chapter in IGS-NT-x.y-Reference Guide for information about correct voltage regulation setting.

20 Check if engine speed regulation works properly if this alarm is issued. See Sync/*Load control adjustment* chapter in IGS-NT-x.y-Reference Guide for information about correct engine speed regulation setting.

21 In GenConfig go to Options/Settings/Display and select Advanced.

22 Check either mains transformer or generator phases connection, one of transformer or generator phases is connected the other way round (swap transformer or generator coil leads connection).