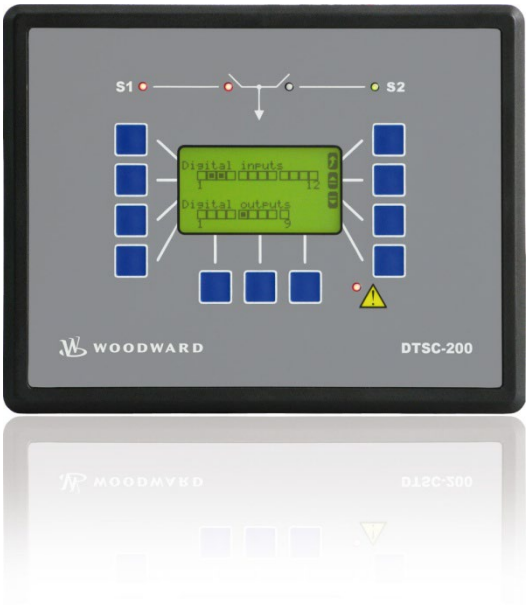
37484C

DTSC-200
ATS Controller - Operation



Operation
Software Version 2.0xxx

Manual 37484C

WARNING

Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment. Practice all plant and safety instructions and precautions. Failure to follow instructions can cause personal injury and/or property damage.

The engine, turbine, or other type of prime mover should be equipped with an overspeed (overtemperature, or overpressure, where applicable) shutdown device(s), that operates totally independently of the prime mover control device(s) to protect against runaway or damage to the engine, turbine, or other type of prime mover with possible personal injury or loss of life should the mechanical-hydraulic governor(s) or electric control(s), the actuator(s), fuel control(s), the driving mechanism(s), the linkage(s), or the controlled device(s) fail.

Any unauthorized modifications to or use of this equipment outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the equipment. Any such unauthorized modifications: (i) constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage, and (ii) invalidate product certifications or listings.

CAUTION

To prevent damage to a control system that uses an alternator or battery-charging device, make sure the charging device is turned off before disconnecting the battery from the system.

Electronic controls contain static-sensitive parts. Observe the following precautions to prevent damage to these parts.

- **Discharge body static before handling the control (with power to the control turned off, contact a grounded surface and maintain contact while handling the control).**
- **Avoid all plastic, vinyl, and Styrofoam (except antistatic versions) around printed circuit boards.**
- **Do not touch the components or conductors on a printed circuit board with your hands or with conductive devices.**

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Important definitions

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, could result in damage to equipment.

NOTE

Provides other helpful information that does not fall under the warning or caution categories.

Revision History

Rev.	Date	Editor	Changes
C	2024-10-24	MK	Describes Software Version V 2.0019 **Changes to previous version** • Introducing of French as 6th language. • Modbus serial input guarded for overload of serial data. **Manual** Updated email address.
B	2017-02-09	GG	Describes software version 2.0014 **Changes to previous version** • Added alarms “Unintended Open S1” and “Unintended Open S2”. For details see pages 19 and 35.
A	2013-11-04	GG	Describes software version 2.0012 **Changes to previous version** • New parameter 3463 ‘Limit switch failure delay time’ and • new LogicsManager 12981 ‘Reset limit switch failure’ implemented. For details see Limit Switch Monitoring (Mechanical Failure, LM 21.11) on page 22. • LogicsManager 12981 ‘Reset limit switch failure’ status available via data telegram 4701. **Manual** • Description of chapter ‘Blocking Transfer Operations’ updated for better understanding (see page 20). • Description of Limit Switch Monitoring (Mechanical Failure, LM 21.11) takes care for new parameter 3463 ‘Limit switch failure delay time’ and manual acknowledgement using the Reset button on ‘Limit Switch Fail’ screen. For detail see page 22. • Description of the Truth Tables updated regarding parameter 3463 ‘Limit switch failure delay time’ and better understanding of states. LogicsManager IDs are implemented for more easy cross functional explanation. For details see page 23 ff. • Chapter 4.Appendix A lists the ‘Limit Switch Fail’ state with respect to new parameter 3463 ‘Limit switch failure delay time’ on page 32 ff. • Alarm Messages overview on page 34 ff takes respect to the manual reset after ‘Mechanical fail’ (Limit switch failure).
NEW	11-11-17	TE	Release Software Version 2.0xxx - Based on 37387A

Content

Illustrations And Tables

Illustrations

Tables

Chapter 1.
General Information

Related Documents

Type		English	German
DTSC-200			
DTSC-200 - Installation		37482	-
DTSC-200 - Configuration		37483	-
DTSC-200 - Operation	this manual ⇨	37484	-
DTSC-200 - Application		37485	-
DTSC-200 - Interfaces		37486	-

Table 1-1: Manual - Overview

Intended Use The unit must only be operated for the uses described in this manual. The prerequisite for a proper and safe operation of the product is correct transportation, storage, and installation as well as careful operation and maintenance.

NOTE

This manual has been developed for a unit fitted with all available options. Inputs/outputs, functions, configuration screens and other details described, which do not exist on your unit, may be ignored.

The present manual has been prepared to enable the installation and commissioning of the unit. On account of the large variety of parameter settings, it is not possible to cover every possible combination. The manual is therefore only a guide. In case of incorrect entries or a total loss of functions, the default settings can be taken from the enclosed list of parameters at the rear of this manual.

Chapter 2.
Navigation / Operation

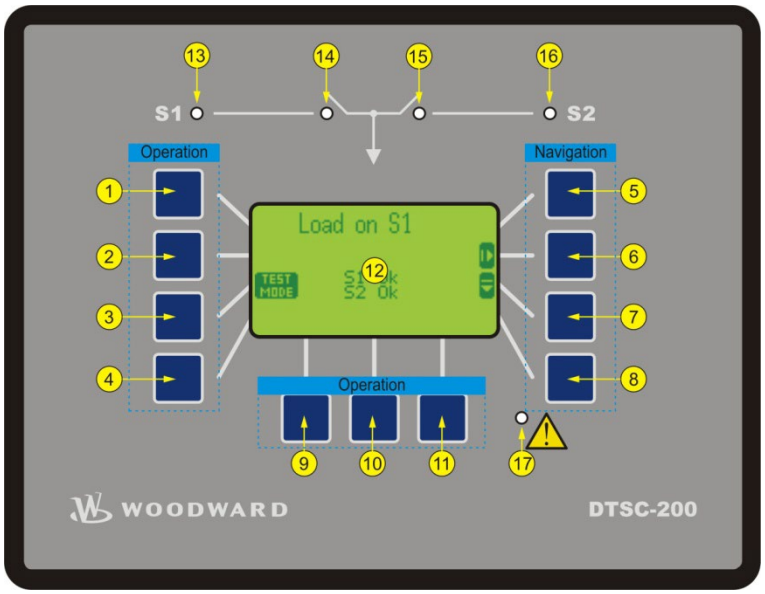


Figure 2-1: Front panel and display

Figure 2-1 illustrates the front panel/display, which includes push buttons, LEDs and the Liquid Crystal display (LC display). A short description of the front panel is given below.

Fct.-block

Function blocks

Buttons that have the same function within one screen are grouped into function blocks. The function blocks are defined as:

Operation .... Used to perform manual operation of the genset (page 14).
Navigation ... Navigation between system and configuration screens, and alarm list (page 15).

1 2 3 4 5 6 7 8 9 10 11

Push buttons

The push buttons on the front panel are assigned to softkeys on the display. Each softkey is assigned to a function depending on the mode of operation.

12

Liquid Crystal Display (LC display)

The display contains softkey characters, measuring values, modes of operation, and alarms. The functionality of the display screens as well as the description of the functions is detailed in the " Navigation" section (page 8).

13 14 15 16 17

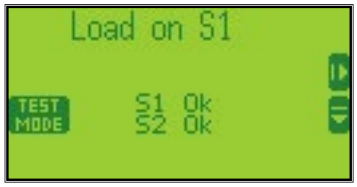
LEDs

The left LED 13 indicates that Source 1 is available. The second LED 14 indicates that the switch is closed to Source 1 position. The third LED 15 indicates that the switch is closed to Source 2 position. The right LED 16 indicates that Source 2 is available. The lower LED 17 indicates that alarm messages are active / present in the control unit.

Navigation

Individual display screens are listed in the following text. All softkeys, which are available in the individual screens, are described with their function.

Screen "Automatic operation" / "Start screen" **[all application modes]**



This screen appears upon startup of the unit.

Navigate to the next screen

Main menu

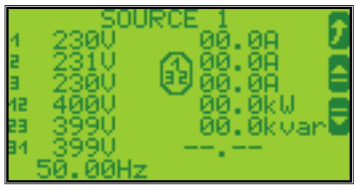
This softkey is only displayed if an alarm is present (the alarm message is indicated on the display). If it is flashing, the alarm is still unacknowledged. This softkey displays the alarm list.

This softkey is only displayed if the Alarm LED is flashing (An alarm is present, which has not yet been acknowledged as 'Seen'). This softkey resets the horn and acknowledges the alarm as 'Seen'.

BPASS This softkey is only displayed, if a timer is currently active. If a timer is active, the timer is indicated in the upper section of the display and the remaining time is displayed next to the "Bypass" softkey. The active timer may be bypassed by pressing this softkey. Refer to page 32 for more information about the timers.

TEST MODE This softkey enables the test mode.

Screen "Source 1 values - Details" **[all application modes]**



Note: The display may differ from this example (3Ph/4W) depending on the configured voltage system.

This screen appears after pressing the softkey again. All measured source 1 values are displayed in this screen.

Navigate to the next screen

Navigate to the previous screen

Return to the start screen

1 / **2** / **3**.....Source 1 voltages/currents V/A_{L1N} / V/A_{L2N} / V/A_{L3N}
12 / **23** / **31**.Source 1 voltages V_{L12} / V_{L23} / V_{L31}
00.0V.....Source 1 voltage
00.00Hz.....Source 1 frequency
00.0A.....Source 1 current
000kW.....Source 1 real power
000kvar.....Source 1 reactive power
1.00.....Source 1 power factor = 1
Lg0.00.....Source 1 power factor (lagging)
Ld0.00.....Source 1 power factor (leading)
.....Phase rotation clockwise ↻
.....Phase rotation counterclockwise ↺

Screen "Source 2 values - Details" **[all application modes]**

Note: The display may differ from this example (3Ph/4W) depending on the configured voltage system.

This screen appears after pressing the softkey again. All measured source 2 values are displayed in this screen.

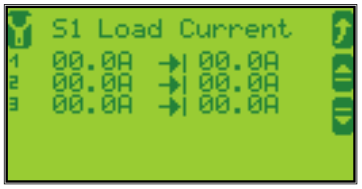
Navigate to the next screen

Navigate to the previous screen

Return to the start screen

1 / **2** / **3** ..... Source 2 voltages/currents V/A$_{L1N}$ / V/A $_{L2N}$ / V/A $_{L3N}$
12 / **23** / **31** Source 2 voltages V_{L12} / V_{L23} / V_{L31}
00.0V..... Source 2 voltage
00.00Hz..... Source 2 frequency
00.0A..... Source 2 current
000kW ..... Source 2 real power
000kvar..... Source 2 reactive power
1.00 ..... Source 2 power factor = 1
Lg0.00 ..... Source 2 power factor (lagging)
Ld0.00 ..... Source 2 power factor (leading)
..... Phase rotation clockwise ↻
..... Phase rotation counterclockwise ↺

Screen "S1 Load Current" **[all application modes]**



This screen appears after pressing the softkey again. The slave pointers show the maximum currents monitored by the control unit.

Navigate to the next screen

Navigate to the previous screen

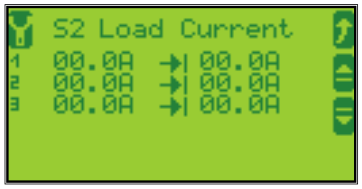
Return to the start screen

Left of the sign: present monitored value
Right of the sign: maximum monitored values

Reset the maximum measured values.

1 / **2** / **3** ..... Load current I_{L1} / I_{L2} / I_{L3}

Screen "S2 Load Current" **[all application modes]**



This screen appears after pressing the softkey again. The slave pointers →| show the maximum currents monitored by the control unit.

Navigate to the next screen

Navigate to the previous screen

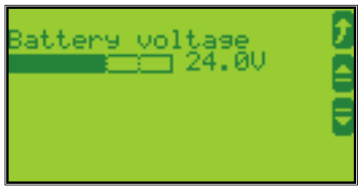
Return to the start screen

Left of the →| sign: present monitored value
Right of the →| sign: maximum monitored values

Reset the maximum measured values.

1 / **2** / **3**.....Load current I_{L1} / I_{L2} / I_{L3}

Screen "Battery voltage value - Details" **[all application modes]**



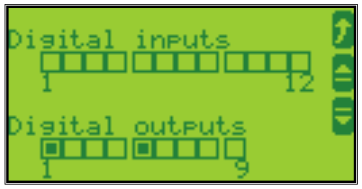
This screen appears after pressing the softkey again. The measured battery voltage value is displayed graphically and numerically.

Navigate to the next screen

Navigate to the previous screen

Return to the start screen

Screen "Discrete inputs / discrete (relay) outputs – Status display" **[all application modes]**



This screen appears after pressing the softkey again. Discrete input and discrete output status are displayed.

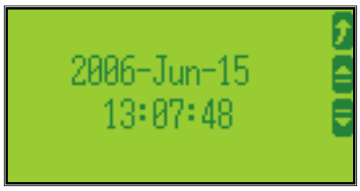
Navigate to the next screen

Navigate to the previous screen

Return to the start screen

☐ ▣ Status display of the discrete inputs and discrete outputs.
(Note: The configured logic for the discrete input "N.O./N.C." will determine how the easYgen reacts to the state ▣ of the discrete input. If the respective DI is configured to N.O, the unit reacts on the energized state (▣); if it is configured to N.C., it reacts on the de-energized state ☐.)
Discrete input: ▣ energized
☐ de-energized
Discrete output: ▣ relay activated
☐ relay de-activated

Screen "Time / Date" **[all application modes]**



This screen appears after pressing the softkey again. Here the time and date are displayed.

Navigate to the next screen

Navigate to the previous screen

Return to the start screen

0000-XXX-00 - Date
0000 = Year
XXX = Month
00 = Day
00:00:00 - Time
00 = Hour
00 = Minute
00 = Second

Screen "LogicsManager Conditions" **[all application modes]**

This screen appears after pressing the softkey again. Here the time and date are displayed.

Navigate to the next screen

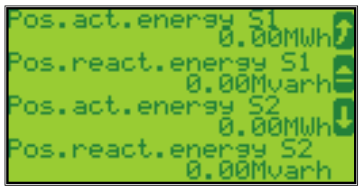
Navigate to the previous screen

Return to the start screen

Navigate to the *LogicsManager* conditions screens

Group00: Flags condition
Group01: Alarm system
Group03: Engine control
Group04: Application
Group06: Alarms
Group08: Syst.related alarms
Group09: Discrete inputs
Group11: Clock and timer
Group12: External Dis
Group13: Discrete outputs
Group14: External DOs
Group19: ATS Status flags
Group20: ATS status flags 2
Group21: ATS alarms
Group98: LM outputs

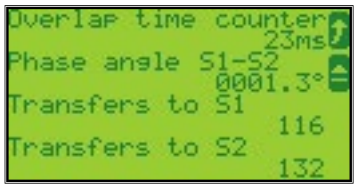
Screen "Counters" **[all application modes]**



This screen appears after pressing the softkey once more. Here the counters are displayed.

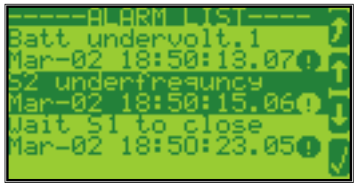
Navigate to the previous screen

Return to the start screen



Energy 0.00 kWh - Generator real energy
0.00MWh = Total generator real energy
Pos. reactive energy 0.00 Mvar - Generator reactive energy
0.00Mvarh = Total generator reactive energy
Overlap time counter 00 ms - Overlap time
00ms = Overlap time of the last transfer
Phase angle S1-S2 000.0° - Phase angle
0000.0° = Ph. angle between source 1 and source 2
Transfers to S1 - Counter transfer to source 1
00000 = Number of S1 transfers
Transfers to S2 - Counter transfer to source 2
00000 = Number of S2 transfers

Screen "Alarm list" **[all application modes]**



This screen appears after pressing the softkey in the start screen. All alarm messages, which have not been acknowledged and cleared, are displayed. Each alarm is displayed in two lines; the first line describes the alarm message and the second line is the date and time that the alarm occurred in the format Mon-dd hh:mm:ss.ss. The symbol indicates that this alarm condition is still present.

Return to the start screen

Scroll up to next alarm message

Scroll down to next alarm message

The selected alarm message (displayed inverted) will be acknowledged. This is only possible, if the alarm condition is no longer present. If the Alarm LED is still flashing (an alarm is present, which has not yet been acknowledged as 'Seen'), this softkey resets the horn and acknowledges the alarm as 'Seen'.

Screen "Test mode" **[all application modes]**

This screen appears after pressing the softkey TEST MODE in the start screen.

OVER VIEW This softkey disables the test mode and returns to the start menu.

LOAD TEST This softkey enables a load test. Just follow the screen instructions to start this test. Once the test is started the device returns to the start screen.

To abort the load test press again the softkey TEST MODE in the start screen. Choose “Cancel Test” and follow the screen instructions to stop this test.

ENGINE TEST This softkey enables an engine test (no load test). Just follow the screen instructions to start this test. Once the test is started the device returns to the start screen.

To abort the engine test press again the softkey TEST MODE in the start screen. Choose “Cancel Test” and follow the screen instructions to stop this test.

BYPASS This softkey is only displayed, if a timer is currently active. If a timer is active, the timer is indicated in the upper section of the display and the remaining time is displayed next to the "Bypass" softkey. The active timer may be bypassed by pressing this softkey. Refer to page 32 for more information about the timers.

Operation

The display is partitioned into different areas to give an overview of the displayed data.

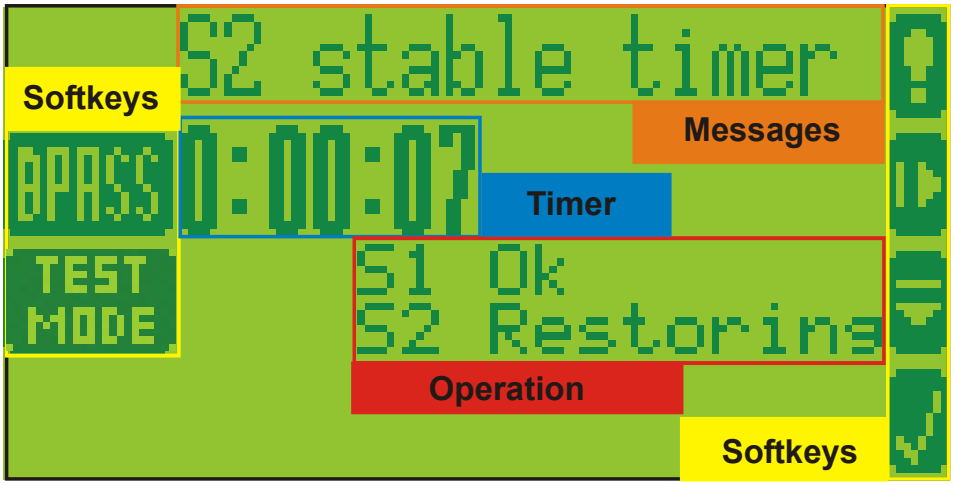


Figure 2-2: Screen - Level overview

"Operation"

The "Operation" section of the screen shows the current status of the sources.

"Messages"

The "Messages" section of the screen shows all active alarms and operations information.

"Timer

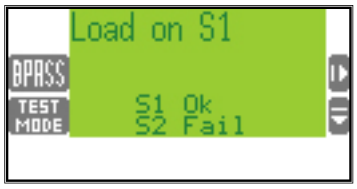
The "Timer" section of the screen indicates a count-down timer if a timer is currently active.

"Softkeys"

The "Softkeys" permit navigation between screens, levels and functions and may be used to operate the unit. Refer to the Operation Display section on page 15 for detailed information.

Operation Display

"Operation" display



The current operation state of the unit and the condition of the sources are displayed during normal operation.

Operation state

The current operation state of the unit is indicated in the "Messages" section of the screen. Refer to Appendix A: Messages on page 32 for a list of the possible operation states.

Source condition

The current source condition is indicated in the "Operation" section of the screen. The following source conditions are possible:

S1/2 Ok
Source 1/2 is considered as "OK", i.e. the voltage and frequency of Source 1/2 are within the restore limits (refer to the Configuration Manual 37482 for more information).

S1/2 Fail
Source 1/2 is considered as "not OK", i.e. the voltage or frequency of Source 1/2 are not within the restore limits (refer to the Configuration Manual 37482 for more information).

S1/2 Restore
Source 1/2 is considered as "OK", but the stable timer for the respective source has not yet expired (refer to the Configuration Manual 37482 for more information).

Timer Display

"Timer" display

If a timer is active, it is indicated in the "Messages" section of the screen and a numerical indication In the "Timer" section counts down the remaining time before the timer expires.

BPASS **Bypass timer**

If a timer is currently active, it may be bypassed with the "Bypass" softkey. This means that the timer expires immediately and the unit proceeds with the next operation. Refer to Appendix A: Messages on page 32 for a list of the possible timers.

Navigation

Softkeys "Navigation"

For navigation between the main screens the softkeys displayed in the right section are used. The softkeys are assigned with different functions.

Read alarm list

If alarms have occurred during operation this softkey character appears. By pressing this softkey the alarm list is displayed.

Leave current screen ("Escape" / "ESC")

By pressing this softkey character you exit and go to the previous screen. If the Escape key is used to leave a configuration screen, any unconfirmed changes made will not be stored.

Changing screen levels

These softkeys are used to navigate from screen to screen.

Activate configuration mode

To activate configuration mode this softkey is used to enter the main menu.

Navigation within the configuration

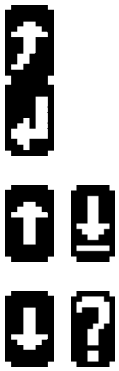
These softkeys scroll between parameters forward or backward, change the cursor position within a parameter, increase the current digit of the parameter and confirm any modifications made within the parameters.

Acknowledgement

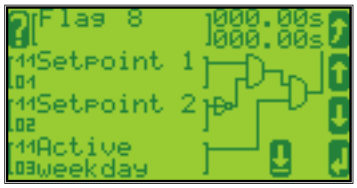
This softkey acknowledges an active alarm and turns off the horn in the main menu or the alarm list.

LogicsManager

Some parameters of the DTSC-200 are configured via the *LogicsManager* (refer to Configuration Manual 37483). A typical *LogicsManager* screen is shown in the following. You may configure a logical operation using various command variables, signs, and logical operators to achieve the desired logical output.



LogicsManager Screen



For configuration of the *LogicsManager* the softkeys displayed in the right section are used. The softkey on the left opens a help screen. The softkeys are assigned with different functions.

Leave current screen ("Escape" / "ESC")

By pressing this softkey character you exit and go to the previous screen. If the Escape key is used to leave a *LogicsManager* configuration screen, any unconfirmed changes made will not be stored.

Change option

By pressing these softkey characters you may change the option of the selected *LogicsManager* parameter upwards or downwards.

Confirm selection

By pressing this softkey character you confirm the configured option of the selected *LogicsManager* parameter.

Select parameter

By pressing this softkey character you may select the *LogicsManager* parameter to be configured. Each time this softkey character is pressed, the parameter will be advanced.

Help button

By pressing this softkey character you get to a help screen, which displays the logical operators of the *LogicsManager*. You may change the help screens with the Down and Up buttons. You may return to the *LogicsManager* with the Escape button.

Chapter 3.
Functional Description

General ATS Functionality

The following flowchart shows the typical ATS functionality:

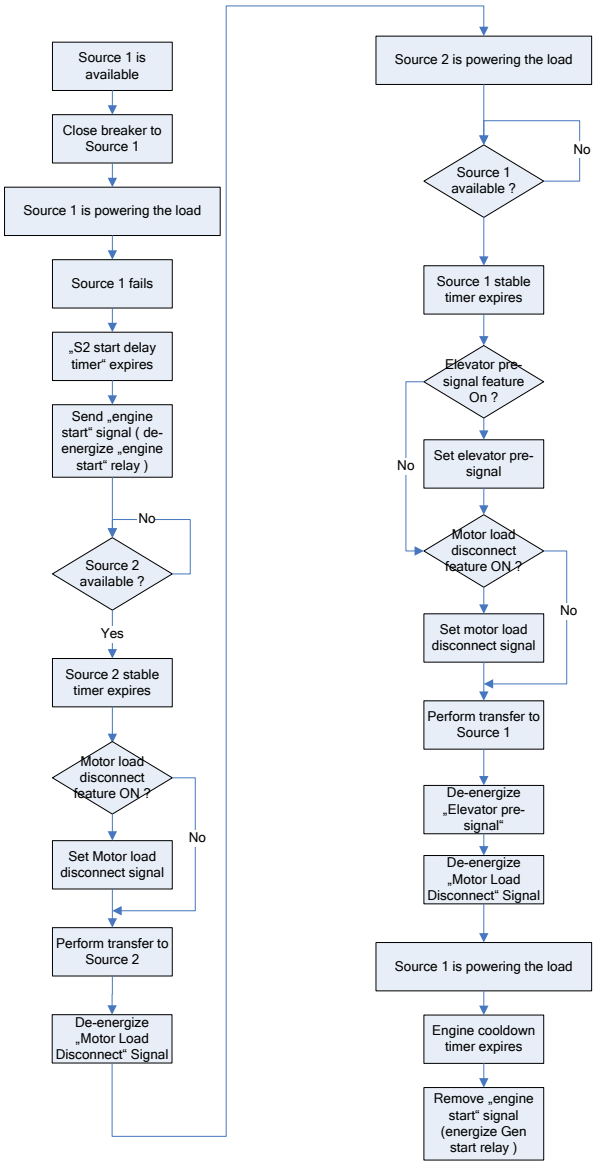
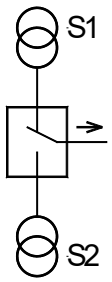


Figure 3-1: General ATS functionality - flowchart

Application Modes

The application mode may be configured in the unit (refer to the Configuration Manual 37483 for more information). This is only possible in code level 2. The most important features and differences of the three application modes are illustrated in the following section. A description of the functions that are possible during each application mode can be found in the configuration manual (manual 37483).

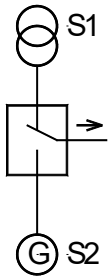
Util-Util Application Mode



This application mode has the following characteristics:

- The ATS controller monitors two mains sources and transfers the load to the secondary source in case the primary source fails
- The ATS controller operates as Master controller

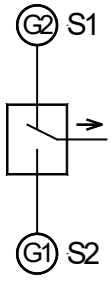
Util-Gen Application Mode



This application mode has the following characteristics:

- The ATS controller monitors a mains sources and a generator source and transfers the load to the generator source in case the mains source fails
- The ATS controller operates as Master controller

Gen-Gen Application Mode



This application mode has the following characteristics:

- The ATS controller monitors two generator sources and transfers the load to the other source in case the regular source fails
- The ATS controller operates as Slave controller
- This application is not a stand-alone application and always combined with another ATS controller in Util-Gen application mode, which operates as Master controller (refer to the Application Manual 37485 for more information)

Engine operation special cases

In Util-Gen application mode and Gen-Gen application mode the ATS starts and stops an engine. Starting and stopping is controlled by the state machine described above. However, in some rare situations the start/stop is affected by the breaker state. These are

- If a breaker cannot be closed to a generator source (indicated by a corresponding alarm), then the engine shall not run, it shall either not start or do a stop after cooldown
- If a breaker is connected to a generator source and cannot be opened (indicated by a corresponding alarm), the engine shall continue to run.
- If a breaker closing to a generator source is inhibited, and the breaker is not already closed, the engine shall not run or do a stop after cooldown.

Blocking Transfer Operations

There are four cases that are able blocking ATS' transfer operations:

1. LogicsManager function 'Inhibit ATS' LM 98.01 (see below)
2. LogicsManager function 'Inhibit XFR to S1' LM 98.02
3. LogicsManager function 'Inhibit XFR to S2' LM 98.03
4. Mechanical Failure LM 21.11; monitored as Limit Switch Failure (see chapter Limit Switch Monitoring (Mechanical Failure, LM 21.11) on page 22).

LogicsManager function "Inhibit ATS"

If the *LogicsManager* function "Inhibit ATS" (parameter 12600) is TRUE, all transfers are blocked! This means that the *LogicsManager* flags

- 20.07 "Close to S1"
- 20.09 "Close to S2"
- 20.08 "Open from S1"
- 20.10 "Open from S2"

are **not** enabled anymore. This block all transfer operations!
Refer to the Configuration Manual 37483 for a description of these parameters.

Switch Failures

Depending on the configured "Transfer switch type" (parameter 3424), all transfers are blocked if specific switch failures occur. Refer to the Configuration Manual 37483 for a description of this parameter.

Transfer Switch Type "Standard"

If one of the following failure conditions is present, all transfer operations are blocked and the respective failure must be acknowledged before a new transfer is possible:

- Fail to close S1 is present
- Fail to close S2 is present

Transfer Switch Type "Delayed"

If one of the following failure conditions is present, all transfer operations are blocked and the respective failure(s) must be acknowledged before a new transfer is possible:

- Fail to open S1 is present
- Fail to open S2 is present

- The transfer switch is in NEUTRAL position AND
  - Fail to close S1 is present AND
  - Fail to close S2 is present

Transfer Switch Type "Closed"

If one of the following failure conditions is present, all transfer operations are blocked and the respective failure(s) must be acknowledged before a new transfer is possible:

- Fail to close S1 is present
- Fail to close S2 is present
- Shunt trip enable flag (20.12) is enabled

- The transfer switch is in S1 or S2 position AND
  - Fail to open S1 is present OR
  - Fail to open S2 is present

Limit Switch Monitoring (Mechanical Failure, LM 21.11)

Functional Description

If the "Limit switch monitoring" function (parameter 3430, refer to the Configuration Manual 37483 for more information about the parameter) is enabled, it is always active, if no transfer command (C2, C1, C2O, C1O) is currently being issued by the ATS controller. The DTSC-200 evaluates the currently present and with use limit switch open replies (parameter 3434) pre-selected replies from the ATS limit switch together with the currently available source to determine which reply signals are currently expected to be able to supply the load.
The plausibility of the ATS limit switch replies will be monitored if a plausibility conflict (see Truth Tables on page 23) is detected, After the ‘Limit switch failure delay time’ (parameter 3463) the ATS controller blocks all further automatic transfers and displays the "Limit switch fail" message together with the actual and expected replies. LM 21.11 ‘Mechanical Fail’ becomes true.

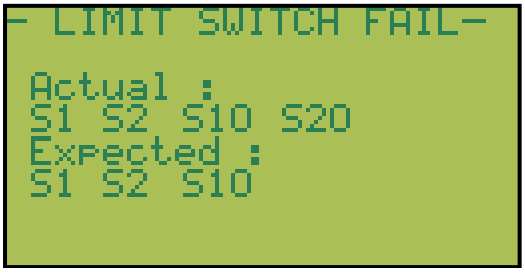


Figure 3-2: Limit switch monitoring - failure message

"Actual" indicates the reply messages, which are currently detected by the ATS limit switch.
"Expected" indicates the reply messages, which are expected to be detected by the ATS limit switch.

A continued automatic operation of the ATS controller is only possible after the "Actual" state matches the "Expected" state again. A "Reset" button will be displayed in the lower right section of the screen if this is the case. This button must be pressed by the operator (or LogicsManager parameter 12891 „Reset limit switch failure“ must become TRUE) to acknowledge the detection and the removal of the failure.

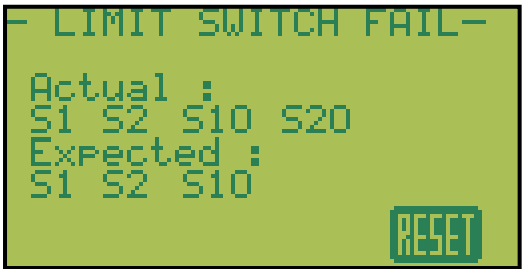


Figure 3-3: Limit switch monitoring – status match enables Reset button

Signal and Command Abbreviations

- S1 Signal: breaker in source 1 position
- S2 Signal: breaker in source 2 position
- S1O Signal: breaker in source 1 OPEN position
- S2O Signal: breaker in source 2 OPEN position
- C1 Command: close to source 1
- C2 Command: close to source 2
- C1O Command: open from source 1
- C2O Command: open from source 2

Truth Tables

The truth tables indicate all possible reply signal combination conditions and the respective reactions of the ATS controller depending on the configuration of the parameters 3424 "Transfer switch type" and 3434 "Use limit sw. OPEN replies" after 3463 ‘Limit switch Failure delay’ is gone. All conditions, which are OK according to the table columns Actual and(!) Expected do not result a "Limit switch fail" message and have a grey background that stands for ‘Not displayed’ but they are relevant for enabling the ‘Reset’ button for manual acknowledge.

Table 3-1 is valid for the following settings:

- Parameter 3424 "Transfer switch type" is configured to "Standard"
- Parameter 3434 "Use limit sw. OPEN replies" is configured to "NO"

S1 preferred 98.11 LM: S1 Priority	S1 source OK LM 19.01	S2 source OK LM 19.11	S1 closed signal	S2 closed signal	Actual	Expected
0	0	0	0	0	-----	S2
0	0	0	0	1	OK	OK
0	0	0	1	0	OK	OK
0	0	0	1	1	S1 S2	S2
0	0	1	0	0	-----	S2
0	0	1	0	1	OK	OK
0	0	1	1	0	OK	OK
0	0	1	1	1	S1 S2	S2
0	1	0	0	0	-----	S1
0	1	0	0	1	OK	OK
0	1	0	1	0	OK	OK
0	1	0	1	1	S1 S2	S1
0	1	1	0	0	-----	S2
0	1	1	0	1	OK	OK
0	1	1	1	0	OK	OK
0	1	1	1	1	S1 S2	S1
1	0	0	0	0	-----	S1
1	0	0	0	1	OK	OK
1	0	0	1	0	OK	OK
1	0	0	1	1	S1 S2	S1
1	0	1	0	0	-----	S2
1	0	1	0	1	OK	OK
1	0	1	1	0	OK	OK
1	0	1	1	1	S1 S2	S2
1	1	0	0	0	-----	S1
1	1	0	0	1	OK	OK
1	1	0	1	0	OK	OK
1	1	0	1	1	S1 S2	S1
1	1	1	0	0	S1 S2	S1
1	1	1	0	1	OK	OK
1	1	1	1	0	OK	OK
1	1	1	1	1	S1 S2	S1

Table 3-1: Limit switch monitoring - truth table for "Standard" limit switch w/o "Open" replies

Table 3-2 is valid for the following settings:

- Parameter 3424 "Transfer switch type" is configured to "Delayed"
- Parameter 3434 "Use limit sw. OPEN replies" is configured to "NO"

S1 preferred 98.11 LM: S1 Priority	S1 source OK LM 19.01	S2 source OK LM 19.11	S1 closed signal	S2 closed signal	Actual	Expected
0	0	0	0	0	OK	OK
0	0	0	0	1	OK	OK
0	0	0	1	0	OK	OK
0	0	0	1	1	S1 S2	S2
0	0	1	0	0	OK	OK
0	0	1	0	1	OK	OK
0	0	1	1	0	OK	OK
0	0	1	1	1	S1 S2	S2
0	1	0	0	0	OK	OK
0	1	0	0	1	OK	OK
0	1	0	1	0	OK	OK
0	1	0	1	1	S1 S2	S1
0	1	1	0	0	OK	OK
0	1	1	0	1	OK	OK
0	1	1	1	0	OK	OK
0	1	1	1	1	S1 S2	S2
1	0	0	0	0	OK	OK
1	0	0	0	1	OK	OK
1	0	0	1	0	OK	OK
1	0	0	1	1	S1 S2	S1
1	0	1	0	0	OK	OK
1	0	1	0	1	OK	OK
1	0	1	1	0	OK	OK
1	0	1	1	1	S1 S2	S2
1	1	0	0	0	OK	OK
1	1	0	0	1	OK	OK
1	1	0	1	0	OK	OK
1	1	0	1	1	S1 S2	S1
1	1	1	0	0	OK	OK
1	1	1	0	1	OK	OK
1	1	1	1	0	OK	OK
1	1	1	1	1	S1 S2	S1

Table 3-2: Limit switch monitoring - truth table for "Delayed" limit switch w/o "Open" replies

Limit switch monitoring is disabled for the following settings:

- Parameter 3424 "Transfer switch type" is configured to "Standard"
- Parameter 3434 "Use limit sw. OPEN replies" is configured to "NO"

Table 3-3 is valid for the following settings:

- Parameter 3424 "Transfer switch type" is configured to "Delayed" Parameter 3434 "Use limit sw. OPEN replies" is configured to "YES"

S1 preferred 98.11 LM: S1 Priority	S1 source OK LM 19.01	S2 source OK LM 19.11	S1 closed signal	S2 closed signal	S1 open signal	S2 open signal	Actual	Expected
0	0	0	0	0	0	0	-----	S2 S1O
0	0	0	0	0	0	1	S2O	S2 S1O
0	0	0	0	0	1	0	S1O	S2 S1O
0	0	0	0	0	1	1	OK	OK
0	0	0	0	1	0	0	S2	S2 S1O
0	0	0	0	1	0	1	S2 S2O	S2 S1O
0	0	0	0	1	1	0	OK	OK
0	0	0	0	1	1	1	S2 S1O S2O	S2 S1O
0	0	0	1	0	0	0	S1	S2 S1O
0	0	0	1	0	0	1	OK	OK

S1 preferred 98.11 LM: S1 Priority	S1 source OK LM 19.01	S2 source OK LM 19.11	S1 closed signal	S2 closed signal	S1 open signal	S2 open signal	Actual	Expected
0	0	0	1	0	1	0	S1 S1O	S2 S1O
0	0	0	1	0	1	1	S1 S1O S2O	S2 S1O
0	0	0	1	1	0	0	S1 S2	S2 S1O
0	0	0	1	1	0	1	S1 S2 S2O	S2 S1O
0	0	0	1	1	1	0	S1 S2 S1O	S2 S1O
0	0	0	1	1	1	1	S1 S2 S1O S2O	S2 S1O
0	0	1	0	0	0	0	-----	S2 S1O
0	0	1	0	0	0	1	S2O	S2 S1O
0	0	1	0	0	1	0	S1O	S2 S1O
0	0	1	0	0	1	1	OK	OK
0	0	1	0	1	0	0	S2	S2 S1O
0	0	1	0	1	0	1	S2 S2O	S2 S1O
0	0	1	0	1	1	0	OK	OK
0	0	1	0	1	1	1	S2 S1O S2O	S2 S1O
0	0	1	1	0	0	0	S1	S2 S1O
0	0	1	1	0	0	1	OK	OK
0	0	1	1	0	1	0	S1 S1O	S2 S1O
0	0	1	1	0	1	1	S1 S1O S2O	S2 S1O
0	0	1	1	1	0	0	S1 S2	S2 S1O
0	0	1	1	1	0	1	S1 S2 S2O	S2 S1O
0	0	1	1	1	1	0	S1 S2 S1O	S2 S1O
0	0	1	1	1	1	1	S1 S2 S1O S2O	S2 S1O
0	1	0	0	0	0	0	-----	S1 S2O
0	1	0	0	0	0	1	S2O	S1 S2O
0	1	0	0	0	1	0	S1O	S1 S2O
0	1	0	0	0	1	1	OK	OK
0	1	0	0	1	0	0	S2	S1 S2O
0	1	0	0	1	0	1	S2 S2O	S1 S2O
0	1	0	0	1	1	0	OK	OK
0	1	0	0	1	1	1	S2 S1O S2O	S1 S2O
0	1	0	1	0	0	0	S1	S1 S2O
0	1	0	1	0	0	1	OK	OK
0	1	0	1	0	1	0	S1 S1O	S1 S2O
0	1	0	1	0	1	1	S1 S1O S2O	S1 S2O
0	1	0	1	1	0	0	S1 S2	S1 S2O
0	1	0	1	1	0	1	S1 S2 S2O	S1 S2O
0	1	0	1	1	1	0	S1 S2 S1O	S1 S2O
0	1	0	1	1	1	1	S1 S2 S1O S2O	S1 S2O
0	1	1	0	0	0	0	-----	S2 S1O
0	1	1	0	0	0	1	S2O	S2 S1O
0	1	1	0	0	1	0	S1O	S2 S1O
0	1	1	0	0	1	1	OK	OK
0	1	1	0	1	0	0	S2	S2 S1O
0	1	1	0	1	0	1	S2 S2O	S2 S1O
0	1	1	0	1	1	0	OK	OK
0	1	1	0	1	1	1	S2 S1O S2O	S2 S1O
0	1	1	1	0	0	0	S1	S2 S1O
0	1	1	1	0	0	1	OK	OK
0	1	1	1	0	1	0	S1 S1O	S2 S1O
0	1	1	1	0	1	1	S1 S1O S2O	S2 S1O
0	1	1	1	1	0	0	S1 S2	S2 S1O
0	1	1	1	1	0	1	S1 S2 S2O	S2 S1O
0	1	1	1	1	1	0	S1 S2 S1O	S2 S1O
0	1	1	1	1	1	1	S1 S2 S1O S2O	S2 S1O
1	0	0	0	0	0	0	-----	S1 S2O
1	0	0	0	0	0	1	S2O	S1 S2O
1	0	0	0	0	1	0	S1O	S1 S2O
1	0	0	0	0	1	1	OK	OK
1	0	0	0	1	0	0	S2	S1 S2O
1	0	0	0	1	0	1	S2 S2O	S1 S2O
1	0	0	0	1	1	0	OK	OK
1	0	0	0	1	1	1	S2 S1O S2O	S1 S2O
1	0	0	1	0	0	0	S1	S1 S2O
1	0	0	1	0	0	1	OK	OK
1	0	0	1	0	1	0	S1 S1O	S1 S2O

S1 preferred 98.11 LM: S1 Priority	S1 source OK LM 19.01	S2 source OK LM 19.11	S1 closed signal	S2 closed signal	S1 open signal	S2 open signal	Actual	Expected
1	0	0	1	0	1	1	S1 S1O S2O	S1 S2O
1	0	0	1	1	0	0	S1 S2	S1 S2O
1	0	0	1	1	0	1	S1 S2 S2O	S1 S2O
1	0	0	1	1	1	0	S1 S2 S1O	S1 S2O
1	0	0	1	1	1	1	S1 S2 S1O S2O	S1 S2O
1	0	1	0	0	0	0	-----	S2 S1O
1	0	1	0	0	0	1	S2O	S2 S1O
1	0	1	0	0	1	0	S1O	S2 S1O
1	0	1	0	0	1	1	OK	OK
1	0	1	0	1	0	0	S2	S2 S1O
1	0	1	0	1	0	1	S2 S2O	S2 S1O
1	0	1	0	1	1	0	OK	OK
1	0	1	0	1	1	1	S2 S1O S2O	S2 S1O
1	0	1	1	0	0	0	S1	S2 S1O
1	0	1	1	0	0	1	OK	OK
1	0	1	1	0	1	0	S1 S1O	S2 S1O
1	0	1	1	0	1	1	S1 S1O S2O	S2 S1O
1	0	1	1	1	0	0	S1 S2	S2 S1O
1	0	1	1	1	0	1	S1 S2 S2O	S2 S1O
1	0	1	1	1	1	0	S1 S2 S1O	S2 S1O
1	0	1	1	1	1	1	S1 S2 S1O S2O	S2 S1O
1	1	0	0	0	0	0	-----	S1 S2O
1	1	0	0	0	0	1	S2O	S1 S2O
1	1	0	0	0	1	0	S1O	S1 S2O
1	1	0	0	0	1	1	OK	OK
1	1	0	0	1	0	0	S2	S1 S2O
1	1	0	0	1	0	1	S2 S2O	S1 S2O
1	1	0	0	1	1	0	OK	OK
1	1	0	0	1	1	1	S2 S1O S2O	S1 S2O
1	1	0	1	0	0	0	S1	S1 S2O
1	1	0	1	0	0	1	OK	OK
1	1	0	1	0	1	0	S1 S1O	S1 S2O
1	1	0	1	0	1	1	S1 S1O S2O	S1 S2O
1	1	0	1	1	0	0	S1 S2	S1 S2O
1	1	0	1	1	0	1	S1 S2 S2O	S1 S2O
1	1	0	1	1	1	0	S1 S2 S1O	S1 S2O
1	1	0	1	1	1	1	S1 S2 S1O S2O	S1 S2O
1	1	1	0	0	0	0	-----	S1 S2O
1	1	1	0	0	0	1	S2O	S1 S2O
1	1	1	0	0	1	0	S1O	S1 S2O
1	1	1	0	0	1	1	OK	OK
1	1	1	0	1	0	0	S2	S1 S2O
1	1	1	0	1	0	1	S2 S2O	S1 S2O
1	1	1	0	1	1	0	OK	OK
1	1	1	0	1	1	1	S2 S1O S2O	S1 S2O
1	1	1	1	0	0	0	S1	S1 S2O
1	1	1	1	0	0	1	OK	OK
1	1	1	1	0	1	0	S1 S1O	S1 S2O
1	1	1	1	0	1	1	S1 S1O S2O	S1 S2O
1	1	1	1	1	0	0	S1 S2	S1 S2O
1	1	1	1	1	0	1	S1 S2 S2O	S1 S2O
1	1	1	1	1	1	0	S1 S2 S1O	S1 S2O
1	1	1	1	1	1	1	S1 S2 S1O S2O	S1 S2O

Table 3-3: Limit switch monitoring - truth table for "Open" limit switch with "Open" replies

Chapter 4.
Configuration

This chapter provides information "how to configure the unit via the LC display" as well as the description of all parameters that may be changed without a password. If you have the correct passwords to access all code levels in order configure the unit, refer to manual 37483 for a description of all parameters, their setting range, and their influence to the operation of the unit.

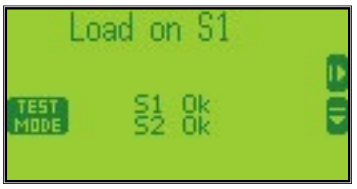
Structure of the Parameters

The parameters, which may be accessed in code level 0 (no access restrictions) are structured as follows (refer to the Parameters section on page 29 for a more detailed description):

Main Menu

- Language
  - English
  - Español
  - Polski
  - German
  - Russky
  - Français
- Password
- Change display contrast
- Configure monitoring
  - Time until horn reset
- System parameter
  - Password system
    - Code level display
    - Code level CAN port
    - Code level serial port / DPC
    - Password
    - Password CAN
    - Password DPC
    - Factory settings
  - Set clock
    - Hour
    - Minute
    - Second
    - Day
    - Month
    - Year
  - Version

Access configuration menus



By pressing the softkey, the main menu will be displayed to permit configuration of the control unit.

Softkeys "Configuration - select parameter"

Navigation through the parameters is carried out using the softkeys and . To edit the selected parameter press . To save the edited parameter press . To exit the parameter without saving any changes press .

Return to the Main Screen/exit parameter without saving changes ("Escape")

Navigate..... Pressing the softkey will return the operator to the main display screen that shows monitored parameters. If the operator is configuring the control unit, this will return the user to the previous screen displayed.

Edit ..... If it is desired to exit a parameter without saving changes made there, press the softkey and the user will be returned to the previous screen.

Next parameter

Navigate..... This softkey permits the user to navigate down through the parameters. Only the parameters assigned by the active password will be displayed. The parameters that may be viewed without a password are described later in this manual.

Previous parameter/increase/change function

Navigate..... This softkey permits the user to navigate upwards through the parameters.

Edit ..... If the desired parameter has been selected by pressing the softkey, and the cursor has been moved to the appropriate position via the softkey, the value of the digit may be increased by one using the softkey. If the digit has reached the highest numeral permitted for the placeholder, the unit will return to the lowest digit by pressing the softkey again.

Select parameter/input confirmation ("Enter")

Navigate..... A highlighted parameter may be configured by pressing the softkey. This permits the changing of the configured value within the parameter.

Edit ..... Any value that has been changed within a parameter is changed and stored in the unit memory by pressing the softkey.

Next digit of the selected parameter

If the parameter has a numeric value (i.e. the password) that is to be changed, the digits must be changed individually. The softkey permits navigation to each cursor position of the number to be changed. See the softkey symbols for an explanation of how to change the digit.

Parameters

NOTE

Descriptions of all parameters, which may be edited/configured via the display, are described in manual 37483.

Language

EN Language
DE Language

Change language **{Language}**

{Language} ..The selection of a language will affect the following text in the control unit:

- Text in the operating field which are not defined by an input (i.e. discrete inputs may be a user-defined text)
- The alarm list text
- All parameters which may be changed via the unit front panel

Password

EN Password display
GR Passwort Display

Password for access via the unit front panel **0000 to 9999**

A password must be entered to permit configuration of the unit via the unit panel. If a password is not entered only the displayed parameters may be edited. All other parameters and a description of their functions may be found in the manual 37483.

Display Contrast

EN Change display contrast
GR Displaykontrast ändern

Change display contrast **+ / -**

In parameter "Change display contrast" the display contrast may be increased or decreased using these softkey characters.

+.....Increase the display contrast.
-.....Decrease the display contrast.
8.....Performs a lamp test.

Deactivate Horn

EN Time until horn reset
GR Zeit Hupenreset

Self acknowledgement of the horn signal **0 to 1.000 s**

A horn signal is issued and the alarm LED flashes when a fault condition occurs. This signal will be disabled when the configured time expires. This is the maximum time, for which a horn signal is active (it will also be deactivated if it is acknowledged before). If this parameter is configured to 0, the horn will remain active until acknowledged.

Code Levels

EN Code level display
GR Codeebene Display

Code level via display **Info**

This value displays the code level that is currently active for access via the front panel.

EN Code level CAN port
GR Codeebene CAN Schnittstel.

Password CAN-Bus **Info**

This value displays the code level that is currently active for access via the CAN bus.

EN Code level serial port / DPC
GR Codebene serielle Schnittstel

Code level RS-232 (DPC interface) **Info**

This value displays the code level that is currently active for access via the serial RS-232 (DPC) interface.

Password

EN Password
GR Passwort

Password for access via the unit front panel **0000 to 9999**

A password must be entered to permit configuration of the unit via the unit front panel. If a password is not entered only the displayed parameters may be edited. All other parameters and a description of their functions may be found in the manual 37483.

EN Password CAN
GR Passwort CAN

Password for access via CAN **0000 to 9999**

A password must be entered to permit configuration of the unit via the CAN bus. If a password is not entered only the displayed parameters may be edited. All other parameters and a description of their functions may be found in the manual 37483.

EN Password DPC
GR Passwort RS232

Password for access via DPC **0000 to 9999**

A password must be entered to permit configuration of the unit via the DPC interface. If a password is not entered only the displayed parameters may be edited. All other parameters and a description of their functions may be found in the manual 37483.

Factory (Default) Values

EN Factory settings
GR Werkseinstellung

Factory setting **YES/NO**

The factory settings (default values) may be loaded. Select YES to enable the following screen to be displayed. It is possible to load the factory settings (default values) for all displayed parameters.

EN Set default values
GR Standardwerte

Set default values **YES/NO**

Entering YES overwrites the current configured values with the default values. Only those parameters will be reset, which are permitted to change in the selected code level.

Real-Time Clock - Time

GR EN
Hour
Stunden

Adjust clock time: hour **0 to 23**

The hour of the current time is set here. Example:
0.....0th hour of the day.
23.....23rd hour of the day.

GR EN
Minute
Minuten

Adjust clock time: minute **0 to 59**

The minute of the current time is set here. Example:
0.....0th minute of the hour.
59.....59th minute of the hour.

GR EN
Second
Sekunden

Adjust clock time: second **0 to 59**

The second of the current time is set here. Example:
0.....0th second of the minute.
59.....59th second of the minute.

Real-Time Clock - Date

GR EN
Day
Tag

Adjust date: day **1 to 31**

The day of the current date is set here. Example:
1.....1st day of the month.
31.....31st day of the month.

GR EN
Month
Monat

Adjust date: month **1 to 12**

The month of the current date is set here. Example:
1.....1st month of the year.
12.....12th month of the year.

GR EN
Year
Jahr

Adjust date: year **0 to 99**

The year of the current date is set here. Example:
0.....Year 2000.
99.....Year 2099.

Version

GR EN
Version
Version

Displays system information **Info**

System information, like serial number of the unit and software version is displayed.

Appendix A. Messages

Timer / Operation States

The following table indicates the display messages of the various timers and operations states:

Display text	Description	Corresponding timer parameter	Note
S1 Start delay	Source 2 has failed, and now the S1 start delay timer is running.	"S1 start delay time" (parameter 4149)	Gen-Gen mode only
S2 Start delay	Source 1 has failed, and now the S2 start delay timer is running.	"S2 start delay time" (parameter 3330)	Util-Gen and Gen-Gen mode only
S1 Stable timer	The transfer from Source 2 to Source 1 is delayed, to permit stabilization of Source 1 before a re-transfer is made. If Source2 fails during timing, a re-transfer to Source 1 will be performed immediately.	"S1 Source Stable time" (parameter 3333)	
S2 Stable timer	The transfer from Source 1 to Source 2 is delayed, to permit stabilization of Source 2 before a transfer is made.	"S2 Source Stable time" (parameter 3332)	
S1 Cooldown	Engine runs unloaded, after a retransfer to Source 2 has been made. This is to ensure that engine 1 has enough time to cool down.	"S1 cooldown time" (parameter 3343)	Only for Gen-Gen applications
S2 Cooldown	Engine runs unloaded, after a retransfer to Source 1 has been made. This is to ensure that engine 2 has enough time to cool down.	"S2 cooldown time" (parameter 3344)	Util-Gen and Gen-Gen mode only
Load on S1	Source 1 is connected to the load.	-	
Starting S2	Engine 2 is being started.	"S2 Start fail delay time" (parameter 3331)	
Load on S2	Source 1 has failed, and Source 2 is connected to the load.	-	
Load test	The control is in “Load Test” mode. A Source 1 failure is simulated (duplicates operation of Source 1 failure).	Load test activation either via "Load test" Softkey or via "Load Test - LogicsManager" (parameter 12640)	
No load test	The ATS system is in "No load Test" mode. This means, that the engine runs unloaded, and no transfers will take place. This test mode is used to ensure proper operation of the engine.	No load test activation either via "Engine test" Softkey or via "No Load Test – LogicsManager" (parameter 12650)	
Elevator signal	The Elevator pre-signal timer is running. This message only occurs, if the "Elevator pre-signal" feature is activated and BOTH sources are available. If only one source is available (like in an emergency case) the elevator pre-signal timer will automatically be bypassed.	"Elevator pre-signal duration" (parameter 4491)	
Starting S1	Engine 1 is being started.	"S1 Start fail delay time" (parameter 3341)	Only for Gen-Gen applications
Wait S1 to open	A command is issued by the ATS Controller to open the ATS switch from Source 1 position	"Limit switch reply timeout" (parameter 3428)	
Wait S2 to open	A command is issued by the ATS Controller to open the ATS switch from Source 2 position	"Limit switch reply timeout" (parameter 3428)	
Wait S1 to close	A command is issued by the ATS Controller to close the ATS switch into Source 1 position	"Limit switch reply timeout" (parameter 3428)	
Wait S2 to close	A command is issued by the ATS Controller to close the ATS switch into Source 2 position	"Limit switch reply timeout" (parameter 3428)	
Rem. peak shave	"Remote peak shave" mode is active	Remote peak shave activation via "Remote peak shave - LogicsManager" (parameter 12630)	
Motor Load Disc.	The Motor Load Disconnect timer is running. This message only occurs, if the "Motor load disconnect" feature is activated.	"Disconnect time S1→S2" (parameter 4551) and/or "Disconnect time S2→S1" (parameter 4552)	
Inhib. XFR to S1	A transfer to Source 1 is inhibited although Source 1 is available. In the case of an Source 2 failure, a transfer to Source 1 takes place, even the transfer is inhibited	"Inhibit transfer to Source 1" activation via "Inhib. XFR to Source 1 - LogicsManager" (parameter 12610)	

Display text	Description	Corresponding timer parameter	Note
Inhib. XFR to S2	A transfer to Source 2 is inhibited although Source 2 is available. In the case of an Source 1 failure, a transfer to Source 2 takes place, even the transfer is inhibited.	"Inhibit transfer to Source 2" activation via "Inhib. XFR to Source 2 - LogicsManager" (parameter 12620)	
Load Shed active	Load shed is active	Load shed active via LogicsManager parameter 12870	
Pwr. rate. prov.	"Interruptible power rate provisions" mode is active	"Interruptible power rate provisions" activation via "Int. Power Rates - LogicsManager" (parameter 12660)	
ATS inhibit	The ATS Controller is in "Inhibit mode". No transfers take place if the ATS controller is set into this mode.	"ATS inhibit" activation via "Inhibit ATS - LogicsManager" (parameter 12600)	
Neutral S1→S2	The ATS controller delays the transfer from NEUTRAL position to Source 2 position.	Neutral time S1→S2 (parameter 3425)	Only available if Transition mode "Delayed" or "Closed" is selected.
Neutral S2→S1	The ATS controller delays the transfer from NEUTRAL position to Source 1 position.	Neutral time S2→S1 (parameter 3426)	Only available if Transition mode "Delayed" or "Closed" is selected.
In-Phase Check	The ATS controller performs an In-Phase check before a transfer is made. This message only occurs, if the "Inphase monitor" feature is activated.	Parameter 4570	
Transfer pause	The ATS controller delays the next transfer attempt.	"Wait time until next XFR attempt" (parameter 3429)	
XFR delay S1→S2	The “Transfer delay timer S1→S2” is used to add an additional delay to the transfer, even if the “S2 stable timer” has already expired.	Transfer delay timer S1→S2 (parameter 4496)	If the transfer delay timer is configured to 0 seconds this display text is not shown.
XFR delay S2→S1	The “Transfer delay timer S2→S1” is used to add an additional delay to the transfer, even if the “S1 stable timer” has already expired.	Transfer delay timer S2→S1 (parameter 4497)	If the transfer delay timer is configured to 0 seconds this display text is not shown.
Limit switch fail	The limit switch monitoring function run into a plausibility check mismatch and displays Actual and Expected replies and sources.	Limit switch failure delay (parameter 3463)	If the limit switch failure delay is configured to 0 seconds limit switch fail would be released permanently.
Service disconn.	The control is in “Service Disconnect Mode”. Both sources are disconnected.	"Service disconnect" activation via "Service disconnect - LogicsManager" (parameter 12890)	Only available if Transition mode "Delayed" or "Closed" is selected.

Table 4-1: Timer / operation states - display

Alarm Messages

Message in ToolKit Message in the display	Meaning
Batt.overvolt. Lev.1 **Batt.overvolt.1**	**Battery overvoltage, limit value 1** The battery voltage has exceeded the limit value 1 for battery overvoltage for at least the configured time and did not fall below the value of the hysteresis. Additionally, the alarm has not been acknowledged (unless the "Self acknowledgement" is configured YES).
Batt.overvolt. Lev.2 **Batt.overvolt.2**	**Battery overvoltage, limit value 2** The battery voltage has exceeded the limit value 2 for battery overvoltage for at least the configured time and did not fall below the value of the hysteresis. Additionally, the alarm has not been acknowledged (unless the "Self acknowledgement" is configured YES).
Batt.undervolt. Lev.1 **Batt.undervolt.1**	**Battery undervoltage, limit value 1** The battery voltage has fallen below the limit value 1 for battery undervoltage for at least the configured time and has not exceeded the value of the hysteresis. Additionally, the alarm has not been acknowledged (unless the "Self acknowledgement" is configured YES).
Batt.undervolt. Lev.2 **Batt.undervolt.2**	**Battery undervoltage, limit value 2** The battery voltage has fallen below the limit value 2 for battery undervoltage for at least the configured time and has not exceeded the value of the hysteresis. Additionally, the alarm has not been acknowledged (unless the "Self acknowledgement" is configured YES).
CAN Open Fault **CAN Open Fault**	**Interface alarm CAN Open** The communication with external expansion boards via the CAN Open interface has been interrupted and no data can be transmitted or received over the bus. Additionally, the alarm has not been acknowledged (unless the "Self acknowledgement" is configured YES).
Fail to close S1	**Switch failed to close to source 1** The ATS controller has issued a "close" command to close the transfer switch to source 1 position, but did not receive any feedback from the limit switch reply "SN" at DI 1 (terminal 51) within the configured time.
Fail to close S2	**Switch failed to close to source 2** The ATS controller has issued a "close" command to close the transfer switch to source 2 position, but did not receive any feedback from the limit switch reply "SE" at DI 2 (terminal 52) within the configured time.
Fail to open S1	**Switch failed to open from source 1** The ATS controller has issued an "open" command to open the transfer switch from source 1 position, but did not receive any feedback from the limit switch reply "SNO" at DI 5 (terminal 55) within the configured time.
Fail to open S2	**Switch failed to open from source 2** The ATS controller has issued an "open" command to open the transfer switch from source 2 position, but did not receive any feedback from the limit switch reply "SNE" at DI 4 (terminal 54) within the configured time.
Overcurrent Lev.1	**Overcurrent, limit value 1** The load current has exceeded the limit value 1 for the load overcurrent for at least the configured time and did not fall below the value of the hysteresis. Additionally, the alarm has not been acknowledged (unless the "Self acknowledgement" is configured YES).
Overcurrent Lev.2	**Overcurrent, limit value 2** The load current has exceeded the limit value 2 for the load overcurrent for at least the configured time and did not fall below the value of the hysteresis. Additionally, the alarm has not been acknowledged (unless the "Self acknowledgement" is configured YES).
Overcurrent Lev.3	**Overcurrent, limit value 3** The load current has exceeded the limit value 3 for the load overcurrent for at least the configured time and did not fall below the value of the hysteresis. Additionally, the alarm has not been acknowledged (unless the "Self acknowledgement" is configured YES).
Overload Lev.1	**Overload, limit value 1** The load power has exceeded the limit value 1 for load overload for at least the configured time and did not fall below the value of the hysteresis. Additionally, the alarm has not been acknowledged (unless the "Self acknowledgement" is configured YES).
Overload Lev.2	**Overload, limit value 2** The load power has exceeded the limit value 2 for load overload for at least the configured time and did not fall below the value of the hysteresis. Additionally, the alarm has not been acknowledged (unless the "Self acknowledgement" is configured YES).

Message in ToolKit Message in the display	Meaning
In-phase timeout	**Inphase timer has expired** If inphase monitoring is enabled and the unit was not able to detect synchronism between source 1 and source 2 within the configured time, this message will be displayed.
Mechanical fail	**Mechanical failure occurred (Limit switch failure)** The limit switch reply evaluation system has recognized an irregular state of the limit switches from the transfer switch. The limit switch fail screen gives detailed information about the ACTUAL reply signals, and the EXPECTED reply signals. Once the Actual reply signals meet the same state as the expected ones, the mechanical failure will present a Reset button on the limit switch fail screen for manual (qualified personnel) acknowledgement and records an entry in the event history.
Overlap timeout	**Switch was unable to open from overlap position** The limit switch reply evaluation system has recognized an irregular state of the limit switches from the transfer switch. It was not possible to open the transfer switch from either source.
S1 phase rot.mis.	**Source 1 phase rotation miswired** If source 1 phase rotation monitoring is enabled and a miswired phase rotation has been detected, this message will be displayed.
S2 phase rot.mis.	**Source 2 phase rotation miswired** If source 2 phase rotation monitoring is enabled and a miswired phase rotation has been detected, this message will be displayed.
Start fail S1	**Source 1 could not be started** Genset 1 could not be started. This is only valid if the application mode is configured to "Gen-Gen".
Start fail S2	**Source 2 could not be started** Genset 2 could not be started.
Unint. Open S1	**Unintended Open S1** The breaker to S1 was opened externally without the ATS having issued an “Open” command
Unint. Open S2	**Unintended Open S2** The breaker to S2 was opened externally without the ATS having issued an “Open” command
Unint. stop S1	**Genset 1 has stopped unintentionally** An unintended stop of genset 1 has occurred (possibly due to a fuel shortage or a general problem with the engine). This is only valid if the application mode is configured to "Gen-Gen".
Unint. stop S2	**Genset 2 has stopped unintentionally** An unintended stop of genset 2 has occurred (possibly due to a fuel shortage or a general problem with the engine).

Released

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