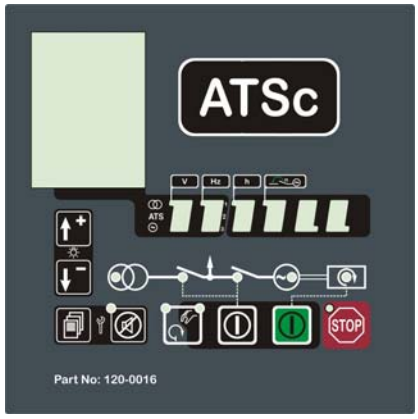
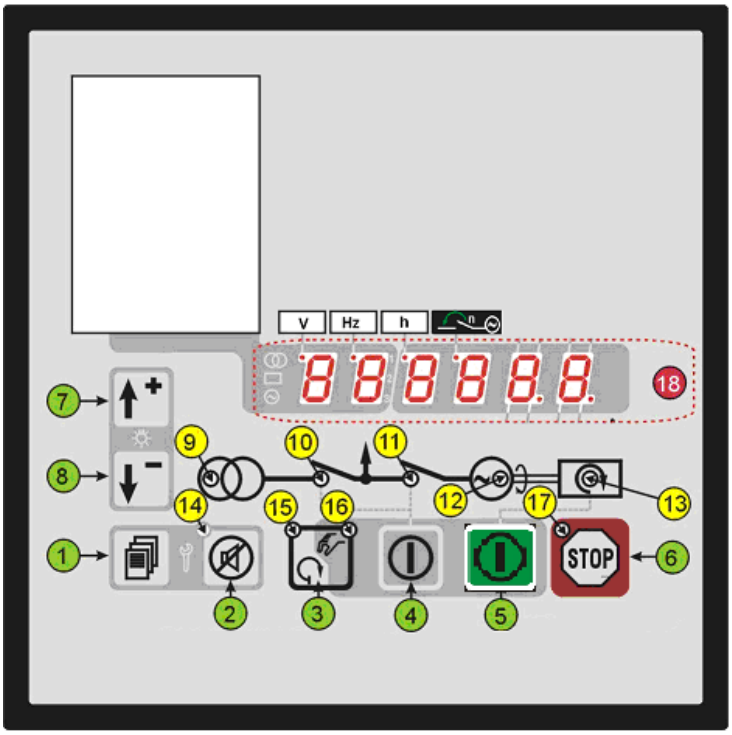
ATSc Automatic Transfer Switch Controller Operation manual



Operator Interface ATSc



ATSc Control Buttons

Position	Button	Description
2		**ALARM/MUTE** button. Active alarm messages may be acknowledged with the Alarm button (2). Alarm conditions are indicated when the LED (14) is illuminated.
3		**AUTO-MANUAL** button. The operation mode can be changed from automatic to manual by pressing the Auto - Manual button (3). LED (15) (automatic) or LED (16) (manual) will indicate the current mode of operation by the corresponding LED being illuminated. **NOTE:** This button will not work if the controller mode is forced by one of remote inputs Lock in MAN, Lock in Auto, or Remote Start when in Auto.
4		**BREAKER CONTROL** button. The Breaker Control button (4) enables the operator to open or close the circuit breaker(s) depending on the current state of the breaker and the control unit being in manual operation mode. This button

		is disabled in automatic operation mode.
5		**START** button. The Start Engine button  will start the engine when the control unit is in manual operation mode. This button is disabled when the control unit is in automatic operation mode. This button is used to start the Genset in Manual Mode. The "Manual Engine Start" Button will only be used to start the engine. As soon as the "Engine Start" Button is pressed, the "Engine start fail delay" timer is started. After 60 seconds if the ATS controller does not recognise any generator voltage and frequency, then an "Engine Start fail" alarm is triggered. The "Engine Start Relay" will stay energised constantly, the "Engine Start fail" alarm will not cause it to de-energise. **NOTE:** This button will not work if the controller mode is forced by one of remote inputs Lock in MAN, Lock in Auto, or Remote Start when in Auto.
6		**STOP** button. The Stop button  is always enabled. It will shut the engine down after the configured cool down period has expired. If the Engine is running and the GCB is closed and MCB open. Pressing the Stop button will open the GCB and the MCB will close if the mains are present. Pressing this button twice will shutdown the genset immediately.

GEN-SET OPERATION INDICATORS

POSITION	INDICATOR DESCRIPTION
9	LED (9) (on): **Mains voltage OK**. Green LED is on, if mains is present and within limits. LED (9) (flashing): **Mains voltage and/or frequency are not within limits.**
10	LED (10): Mains circuit breaker (MCB) closed
11	LED (11): Generator circuit breaker (GCB) closed
12	LED (12) (on): **Gen-set voltage and/or frequency OK**. Green LED is on if the generator voltage and frequency is present and within limits. LED (12) (flashing): **Gen-set voltage and/or frequency are not within limits.**
13	LED (13) (on): Engine in operation LED (13) (flashing): Engine in operation, but engine monitoring delay time not yet expired. Also flashes if the engine is in a starting or cool down cycle.
14	LED (14): Alarm message present.

15	LED 15: Automatic operation.
16	LED 16: Manual operation
17	LED 17: Genset stopped

NOTE:
A FUNCTİONAL TEST OF ALL LEDs AND THE SEVEN-SEGMENT DİSPLAY MAY BE CONDUCTED BY PRESSİNG THE 7 AND 8 BUTTONS SİMULTANEOUSLY.

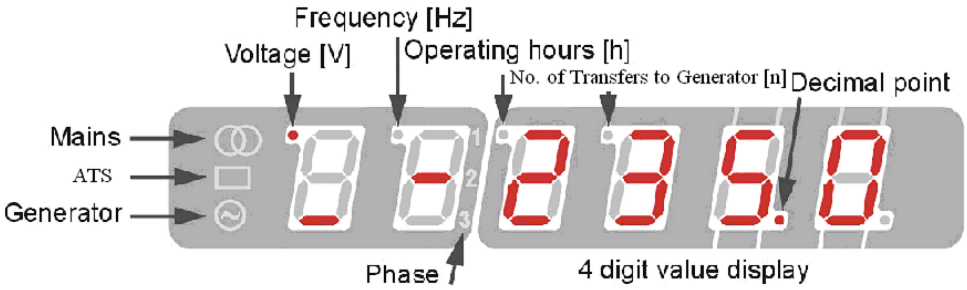
DISPLAY AND CONTROL BUTTONS

POSİTİON	BUTTON	DESCRİPTİON
1		**SCROLL** button. When the ATSc is in normal operation, the operator may view the monitored parameters by using the Scroll button 1. The monitored values will be displayed on the 7-segment display 18 (A detailed description of the displayed operating values may be found later in this manual).
7		**UP** button. Use this button to increase a value when in Configuration Mode.
8		**DOWN** button. Use this button to decrease a value when in Configuration Mode.
18		**7 segement LED Display** This alphanumerical display is used to display all measured values, operating parameters, and alarm messages. A description of this display is detailed on the following page.

Display Screens and Display Structure

The ATSc control units are display a selection of various measured values during operation. To advance through the single value displays use the Scroll button 1.

The values are displayed numerically, whereas the engineering unit, source, and phase are coded in the seven-segment display 18 if applicable.



6 digit 7 segment LED display

- The first digit (on the left) indicates what is being measured, (Mains, ATS, or Generator). The top segment indicates Mains, middle segment indicates ATS, and the bottom segment indicates Generator.
- The second digit indicates the measured phase. The top segment indicates L1, middle segment indicates L2, and the bottom segment indicates L3. If only one line is displayed for phase measurement, a phase to neutral measurement is displayed. If two lines are displayed, a phase to phase measurement is shown.
- Digits 3-6 indicate the numerical value of the parameter displayed.
- The indicators located at the top left of the first four digits of the display indicate the engineering unit of measure to be utilized. The indicators are assigned the following engineering units of measure.
  - Digit 1: Voltage [V]
  - Digit 2: Frequency [Hz]
  - Digit 3: Operating Hours [h]
  - Digit 4: Number of Transfers to Generator [n]

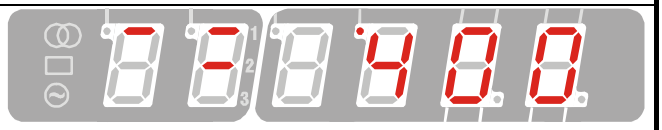
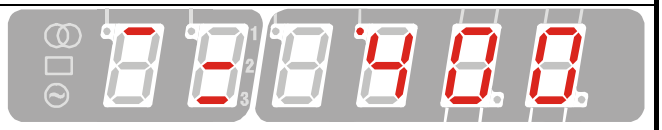
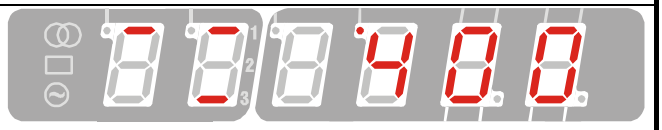
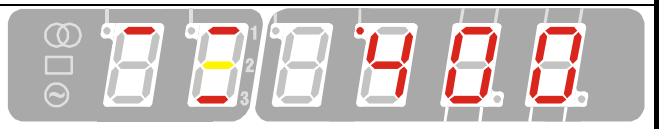
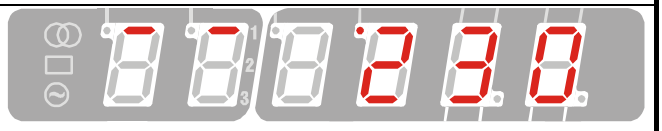
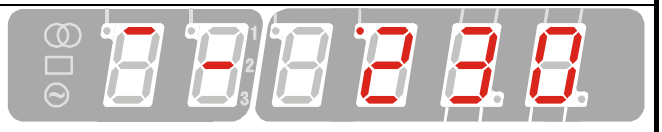
Thus, for example, the figure above reads as follows:
i.e the generator voltage, L2 – N is, 235.0 volts
Voltage at generator between phase L2 and N is 235.0 volts
Digit 1: Generator
Digit 2: Measurement between phase L2 and N
Digits 3 to 6: Numerical value 235.0
Indicator at digit 1: Voltage [V]

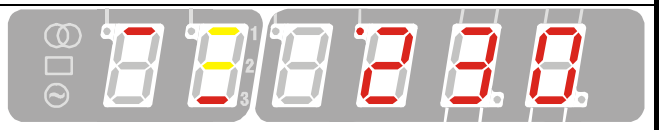
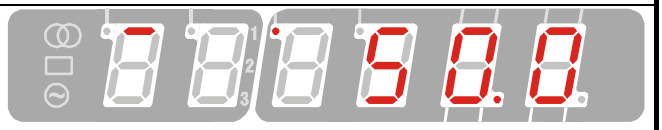
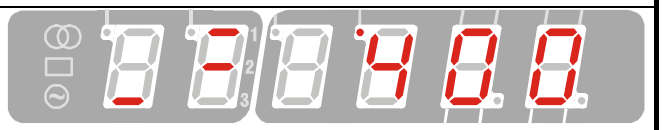
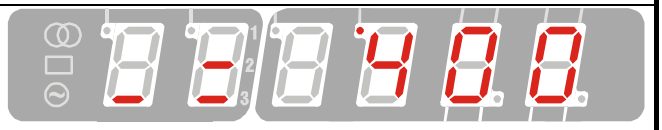
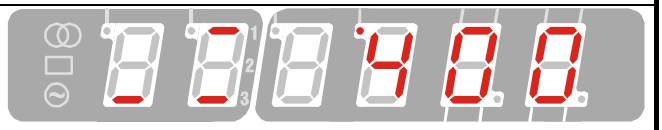
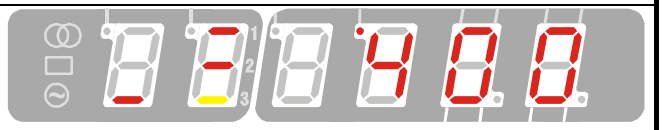
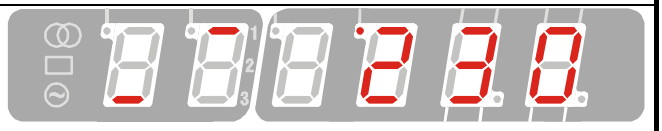
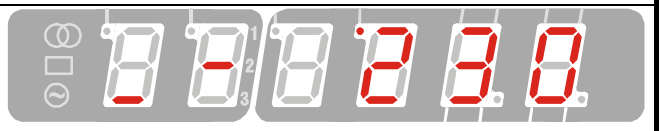
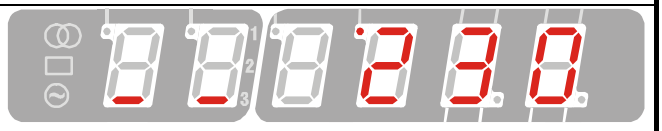
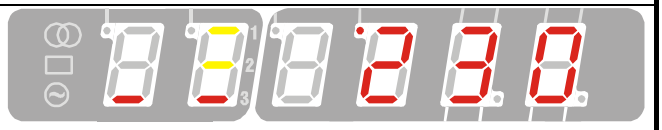
Default Operating Value Display

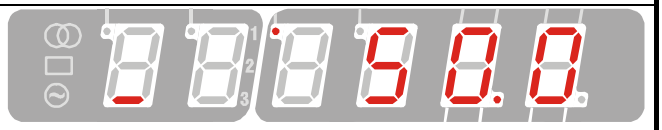
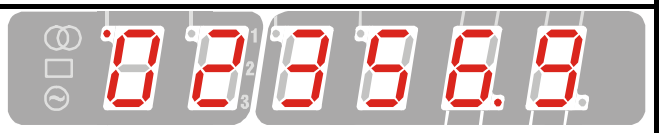
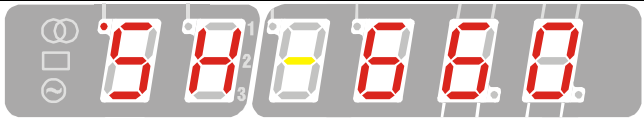
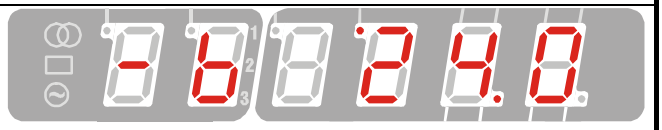
The ATSc detects and selects the default operating value display by evaluating the measured voltage and the circuit breaker position. This default operating value is always displayed first. The operator may advance through the following operating parameters using the Scroll button 1.

Cycling Through the Displayed Operating Values

If the ATSc is in normal operation, the default operating value is displayed. The operator may advance through the different operating parameters using the Scroll button 1. Following the default operating value, the parameters are displayed in the order shown below:

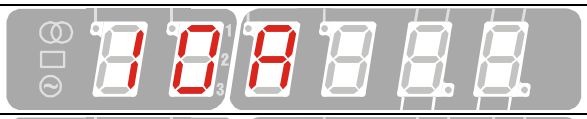
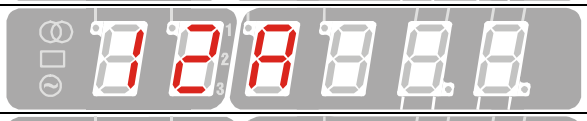
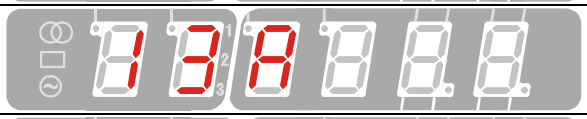
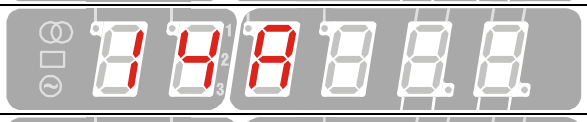
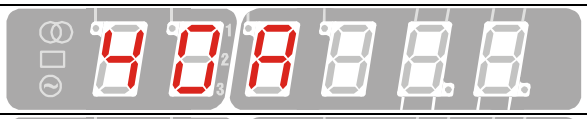
Parameter	Display
Mains voltage V_{12} (V_{Line})	
Mains voltage V_{23} (V_{Line})	
Mains voltage V_{31} (V_{Line})	
Mains voltage Average of the phase-phase voltages (two of the three phase indicators are displayed alternately)	
Mains voltage V_{1N} (V_{Phase})	
Mains voltage V_{2N} (V_{Phase})	
Mains voltage V_{3N} (V_{Phase})	

Parameter	Display
Mains voltage Average of the phase voltages (one of the three phase indicators is displayed alternately)	
Rated mains frequency	
Generator voltage V_{12} (V_{Line})	
Generator voltage V_{23} (V_{Line})	
Generator voltage V_{31} (V_{Line})	
Generator voltage Average of the phase-phase voltages (two of the three phase-phase indicators are displayed alternately)	
Generator voltage V_{1N} (V_{Phase})	
Generator voltage V_{2N} (V_{Phase})	
Generator voltage V_{3N} (V_{Phase})	
Generator voltage Average of the phase voltages (one of the three phase indicators is displayed alternately)	

Parameter	Display
Rated generator frequency	
Operating hours counter (display is six-digit with one decimal)	
Hours to next maintenance (a negative value indicates excess hours, maintenance overdue)	
“Number of transfers to generator” counter	
Battery voltage	

If the Scroll button  is pressed again, the display returns to the default operating value. The display automatically returns after 180 seconds to the default operating value being displayed if a button isn’t pressed.

Alarms

Alarm		Alarm class	Display
10	Generator overfrequency	F: Shutdown	
11	Generator underfrequency	F: Shutdown	
12	Generator overvoltage	F: Shutdown	
13	Generator undervoltage	F: Shutdown	
14	Mains rotation field mismatch	B: Alarm	
30	Start fail	F: Shutdown	
31	Unintended stop	F: Shutdown	
40	Maintenance hours	B: Alarm	
51	Generator breaker close fail	B: Alarm	
52	Generator breaker open fail	B: Alarm	
53	Mains breaker close fail	B: Alarm	
54	Mains breaker open fail	B: Alarm	

'Test With Load' Procedure

- Press the AUTO-MANUAL Button  to put the ATSc in Manual operating Mode  .
- Press the START button to start the Engine 
- After the Frequency/Voltage are within Limits and Engine Monitoring LEDs (LEDs (12) and (13)) stop Flashing and remain ON. The MCB may be opened and

the GCB closed by pressing the Breaker Control Button . This will put the Load on the Generator.

- When the Test With Load is Finished. The Load maybe transferred back to the Mains (The GCB Opened and MCB Closed) and the Generator shutdown by pressing the AUTO-MANUAL Button and putting the ATSc into Automatic operating Mode . This completes the Test With Load Procedure and leaves the ATSc in AUTO Mode ready for a Mains Failure.

'Test Without Load' Procedure

- Press the AUTO-MANUAL Button to put the ATSc in Manual operating Mode .
- Press the START button to start the Engine
- When the Test Without Load is Finished. The Generator may be shutdown by pressing the AUTO-MANUAL Button and putting the ATSc into Automatic operating Mode . This completes the Test Without Load Procedure and leaves the ATSc in AUTO Mode ready for a Mains Failure.

Entering the Configuration Mode

To enter the configuration mode, press the Scroll 1 and Alarm 2 buttons simultaneously. Only the parameters 00 - HMI Password, 01 - Time until horn reset and 72 - Display level are visible without entering a password. In order to display the other parameters, the correct password must be entered in the Parameter 00- HMI Password (0003). Pressing the Scroll button 1 will display the various parameters that can be changed. The displayed values for the parameters may be changed by pressing the 7 and 8 buttons.

NOTE:
A MORE DETAILED ENGINEERS ATSc INSTALLATION AND CONFIGURATION MANUAL IS AVAILABLE UPON REQUEST. IN THIS MANUAL A FULL EXPLANATION OF ALL THE CONFIGURATION PARAMETERS CAN BE FOUND.