

This Quickstart guide, along with the in-built help, will help you get the best out of your Sigma IHT.

The Sigma Intelligent Hand-held Terminal (IHT) provides full load control and three-phase instrumentation on any Froment Sigma-equipped load bank.

1. Connect up the Load Bank



Read the load bank manual before use and take special note of all the safety warnings.

Keep people well away. Close all doors. Ensure cables and earthing are adequate. Risks include fire and burns from the hot air outlet and electric shock.

Before you can start using the IHT to test the supply, the load bank and supply must be cabled up.

- After connecting the power cables between the load bank and supply, ensure the IHT is plugged into the Load Bank IN socket.
- Ensure that the supply on test is operational and any circuit breakers are closed.
- Power-up the Load Bank control circuit.

Both the load bank 'Stop' and 'Start' lamps will light up. After about 15 seconds the 'Start' lamp will go out, you can now press the 'Start' button.

If you look at the IHT you will briefly see the startup logo and, assuming all is well, the **SETTINGS** page with the **SUPPLY ON TEST** details will be finally displayed.

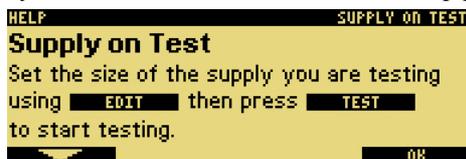


The top line of the screen is the status line. This always displays where you are (such as **SETTINGS**, **TEST** or **OPTIONS**) and what page you are on. So **SETTINGS 1-2**, shows that you are in settings on page 1 of 2.

The bottom line displays the function key labels. This indicates the purpose of the function keys F1 to F4.

2. Help

It is quite possible that when you pick up the IHT for the first time you will see the **SUPPLY ON TEST** help page.



Help is displayed automatically on the settings and test pages after 12 seconds with no activity. This automatic help will only be displayed once.

- You can press the Up and Down function keys (**F1** and **F2**) to scroll through the help.
- Press **OK** (the **F4** key) when you have finished.

A **HELP** function key is available which provides context sensitive help for all messages and options pages.

3. Set the Supply Size

You need to set the details of the supply on test before applying any load.

The **SUPPLY ON TEST** details on the first **SETTINGS** page are used to calculate percent load and to avoid over-loading the supply. A warning symbol is displayed if the load bank may not be large enough to test the supply.

When in **SETTINGS** you can press the + and – keys to quickly change the screen contrast.



- Press **NEW** from **SETTINGS**.

By pressing **NEW** the voltage, frequency and number of phases will be set automatically using the measured values. The supply size (kVA) can then be edited.

The supply must be present on the load bank bus-bars for the automatic setting to work. Note that the **NEW** function is not available when load is applied (the green LED illuminated).

Use **EDIT** if you want to manually change the supply details.



- Press either **PRESET** or use the + and – keys to set the size of the supply in kVA.

HELP provides further information on each selected item. You can press **SELECT** to change between kVA, Power Factor, V, Hz or Phase.

- When the supply size is set correctly press **OK**.

You are now ready to start load testing, so:

- Press **TEST** (now turn over and look at section 5 Apply Load).

4. Settings and Options

- Press **PAGE**, when in **SETTINGS**, to view the second page.



From the second **SETTINGS** page you can look at the load bank capacity or change **OPTIONS**.

CHECK will search for any new load banks and reset any load bank errors.

There are five options pages that control how your IHT system looks and works.

- Press **OPTIONS**



- The options are enabled or disabled by pressing the + and – keys.

You can press **HELP** for further information on the selected item or press **SELECT** to change between items. Press **PAGE** to change to the next page.

- When finished press **OK** to go back to **SETTINGS**.
- Then press **TEST**, to start testing

The **OPTIONS** are automatically saved so you only need to set them once.

5. Apply Load

There are four **TEST** pages; which offer different views of the instrumentation. When you select **TEST** for the first time the following page is displayed.



You can select and apply load on any of the four **TEST** pages in the same way.

- Select the required load using the **+** and **-** keys. By default load control is in percentages. The screen will change to show the load selected pop-up.



Pressing the **SELECT** key changes between load control in %, kW or kVA and power factor. If a resistive-only load bank is used, then the selection will be % and kW only.

- Apply the load by pressing the green **I** key. The load selected pop-up will disappear and the green LED on the IHT will light up.



The selected load pop-up will disappear after 3 seconds or when another key is pressed, but selected load is always displayed on the right of the status line.

Each time you press **I**, load correction will ensure you get the exact load requested. Load correction can be enabled and disabled from **OPTIONS**.

- Load can be removed at any time by pressing the red **O** key.

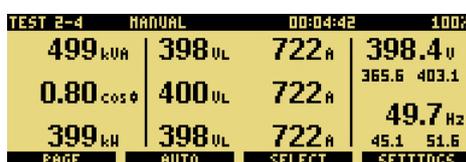
The first **TEST** instrumentation page shows the real-time Voltage and Frequency in large fonts, together with the power in kVA, $\cos \phi$ and kW. Along the top, the Status line shows that we are in **MANUAL**, and 4 minutes and 32 seconds has elapsed since the last load accept. The selected load is displayed on the top right of the status line.

Use this page when initially adjusting the AVR and governor settings.

6. View the Instrumentation

- Press **PAGE** to change to the next instrumentation page. After four presses of **PAGE** you will be back to page one.

The next two **TEST** pages shows all the true rms three-phase measurements of Voltage (V), Frequency (Hz), Current (A), Power (both kW and kVA) and Power Factor (Cos ϕ).



The second and third instrumentation pages provide all the electrical data required when full-load testing. Displayed on the right are the voltage and frequency; below each are the maximum and minimum values for the last load change.

Note that page two shows line-line voltages, whereas page three shows line-neutral voltages

The fourth **TEST** page provides a graphical view of the voltage and frequency when the last load was applied.



The voltage and frequency graphs display the first 6 seconds of the last load change, as a percentage of the supply voltage and frequency rating.

Use this page when testing governor and AVR transient response.

7. Using Automatic Load Control

At any time you can change between manual and automatic load control.

- Press **AUTO** for automatic load control. Press **F2** again to return to **MANUAL**.



- A pre-programmed sequence of up to 16 loads can set up by pressing the **EDIT TEST** key.



Again, use the **+** and **-** keys to change the selected value. Press **SELECT** to select either %, $\cos \phi$ or time.

Pressing **NEXT** moves down to the next line. You can press **COPY** to copy the selected value down to the next line.

- Press **OK** to exit **EDIT TEST**.
- Pressing the green **I** key will start the sequence.
- Load can be removed, and the automatic sequence stopped, by pressing the red **O** key.

The status of the automatic test is shown on the right of the status line.

Any sequence that is running will be paused if **MANUAL**, **EDIT TEST** or **SETTINGS** are pressed. Pressing **I** will restart a paused load sequence.

Whilst the test is running the **+** and **-** keys can be used to quickly override the selected load. Press **I** to apply the new load selected.

