

Navi Advanced System

The **NAVI Advanced** system is the integrated control unit for our load banks.

It is based on an architecture combining an industrial PLC (Programmable Logic Controller) for power management and a touchscreen HMI (Human-Machine Interface) for operation.



Hardware Compatibility

The system is designed to equip the following models as a standard or optional feature:

- Compact models : DATA-100, DATA-200, DATA-300, LLCR-200, LLCR-260, LSKR-200, LSKR-300, LSKR-400, LSKR-500, LSKR-600, LSKR-750, LSKR-1050, LSKR-1500, LSKR-1800, LSKR-2100, LSKR-1300.



- High-power models : L1DR-2500, L1DR-3000, L1DR-3750, L1KM-3300, L2KM-3500, L2KM-4000, L2KM-6300.



Load Type Management

The Navi system allows the control of various load types, in either single-phase or three-phase configuration:

R (Resistive) : For active power testing.

L (Inductive) : For reactive power testing.

C (Capacitive) : For compensation testing.

Mixed configurations : Supports R+L, R+C, and R+L+C combinations for more comprehensive testing.

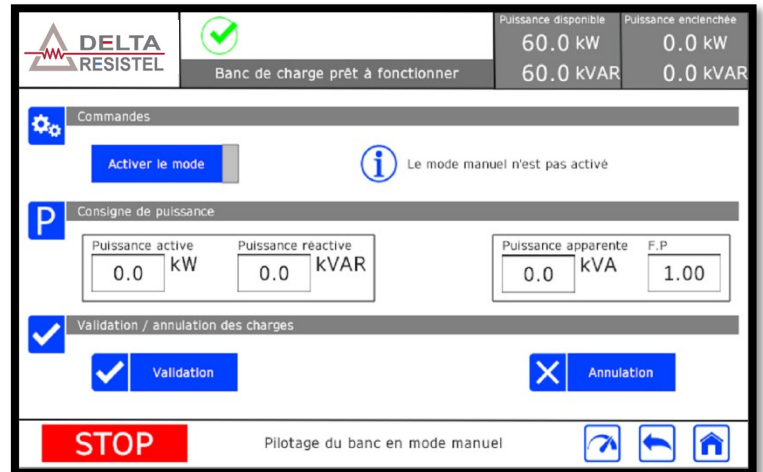
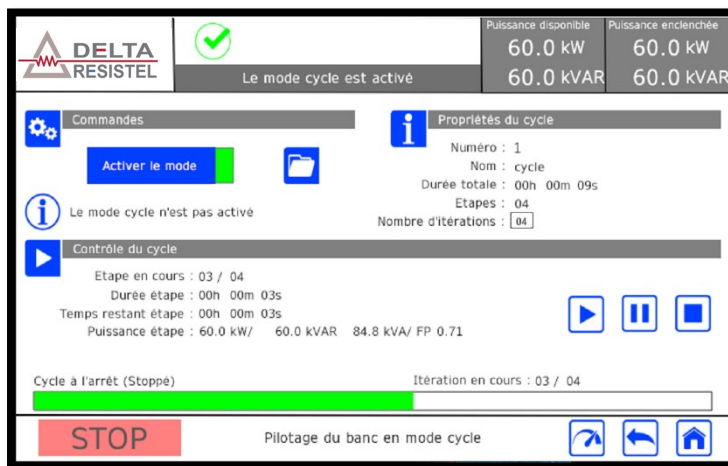
Standard Control Modes

The NAVI Advanced system integrates several control tools:

Manual Mode :

This operating mode offers direct selection of the desired power in kW, kVAR, kVA, and Power Factor.

The Navi system automatically manages the selection of the load steps to match the setpoint.

Cycle Mode :

Repeatability and predictability are the core focus of this mode.

The programming of automatic test sequences (load ramping, hold time, load shedding) allows for defined tests to be executed autonomously and repeatably.

Measurement Module :

Real-time display of electrical parameters (V, A, Hz, kW, kVAR, kVA, Power Factor).

Data logging of these values in CSV format to assist with post-processing and test report generation.



Supervision and Network Integration



ModbusTCP/IP :

Provision of a data exchange table for control and data retrieval by a third-party PLC or a centralized management system (BMS/BAS).



LBPI Software :

Compatibility with Delta-Résistel's LBPI supervision tool, enabling the network management of multiple load banks (up to 100 load banks).

Interface and Ergonomics

Touchscreen HMI:

Simplified menu navigation, available in both French and English.

Visual Data Display:

Integration of trend curves for monitoring measurements during testing.

Secure Access:

Different login levels allow for the separation of operational functions from test or system configuration functions.



Optional Control Modes

Depending on specific requirements, the system can integrate additional software and hardware modules:

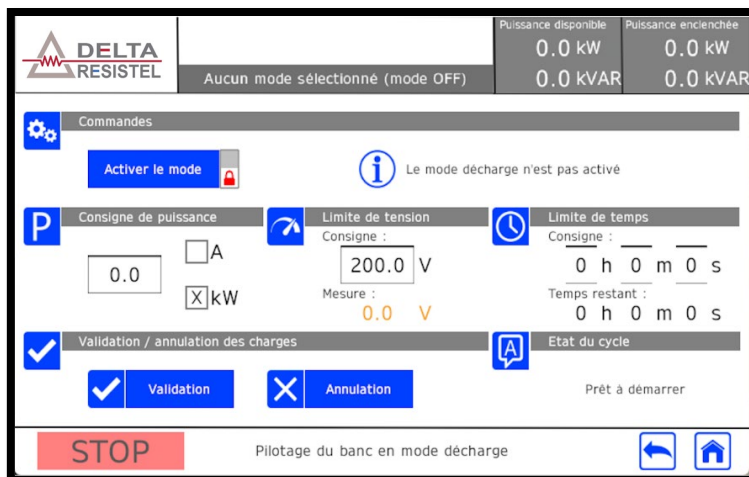
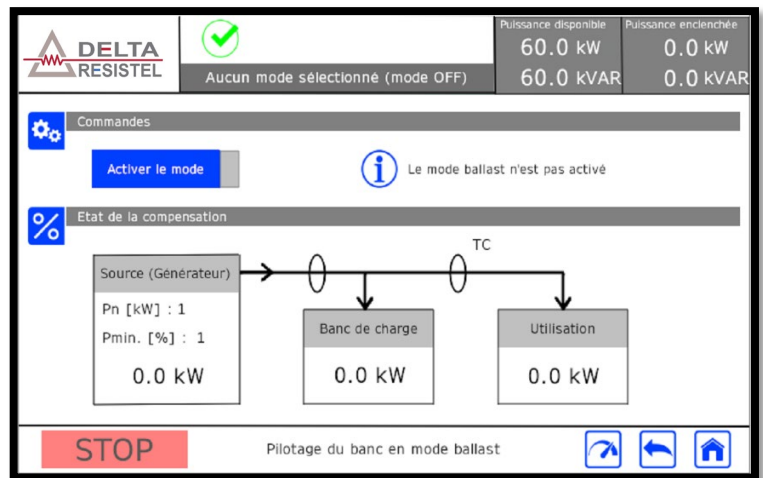
Automatic Power Regulation:

The Navi system takes control and monitors grid voltage fluctuations for you. It automatically adjusts the engaged load steps to ensure that the power remains compliant with the setpoint.

Ballast Mode (Resistive Load Banks):

Autonomous operation right from power-up.

This feature enables automatic calculation and maintenance of the minimum load to be applied to gensets (generator sets).



Battery Discharge Mode (DC):

The Navi system applies the desired power or current setpoint, with continuous regulation throughout the test to compensate for voltage fluctuations.

At the end of the test, the load is automatically shed to safely conclude the operation.

Step-by-Step Mode / Discrete Control Mode:

Offering more advanced control than Manual Mode, this operating mode allows for complete mastery of the test.

The user can directly select the specific load steps to be energized via virtual or physical buttons.

Optional Electrical Configurations

Three-Phase Connections:

For applications involving wide voltage ranges, the Navi system supports connection switching from Star to Delta or Series to Parallel.

This ensures optimal power output for each voltage range.

Unbalance Management:

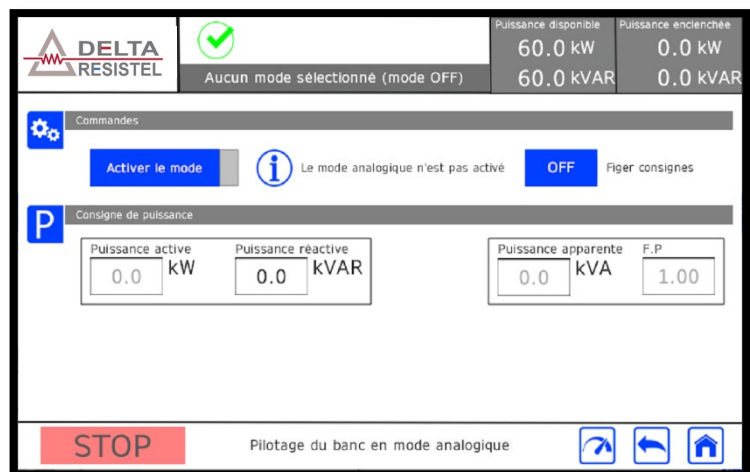
The ability to control each phase independently in this mode allows for the simulation of asymmetrical loads or meets specific per-phase testing requirements.

Physical Inputs/Outputs:

For flexible integration into your working environment, control can be managed via:

Analog signals: Remote control using 0-10V or 4-20mA protocols.

Local controls: Direct operation via robust physical buttons.



Maintenance and Diagnostic Tools

NAVI Advanced integrates internal counters to optimize product lifecycle monitoring:

Power Component Monitoring:

Cycle counting for the main switching device and tracking of the load bank's total operating hours.

Preventive Maintenance for Fans:

Logging of total running time and the number of starts to anticipate motor maintenance.

Operation Log & Diagnostics:

Detailed event history to facilitate technical troubleshooting.

Specific logging of premature ventilation shutdowns to quickly identify the root causes of faults.