

Product description: DNI (Intelligent Level Detector)

The Matelex Intelligent Level Detector (DNI) is a leak detection system for refrigeration installations which uses indirect measurement methods. Complying with French and European regulatory obligations, the DNI is a permanent monitoring device that allows alerts to be sent in the event of a refrigerant leak. Connected to the Sentinelle web interface, the DNI allows remote access to information from the installations in real time (refrigerant level, alarm management, pressures, temperatures, etc.).

In France, the installation of a leak detection device using **indirect measurement methods is mandatory** for installations containing quantities of refrigerants greater than or equal to **500 tonnes of CO₂ equivalent**. (Order of 17/09/19 amending the order of 29/06/16).

Leak detection devices are checked at least once every twelve months to ensure the accuracy of the information relating to the fluid load of the circuits of the equipment they supply (Order of 17/09/19 and EU regulation N°517/2014 known as "F-gas"). Matelex offers an annual kit.



[Consult the regulations applicable to the DNI](#)

Composition of the MATELEX DNI:

- A calculator with a display (touch screen)
- A strain gauge with a rapid suspension system
- A measurement card
- Three PT100 Class A temperature probes ($\pm 0.15^{\circ}\text{C}$ to 0°C)
- Three $100\ \Omega$ resistors
- A pressure transmitter for HFC / 4-20mA / 0-30 bars



Which fluids and types of tanks is it suitable for?

The DNI works with **all refrigerants**, including CO₂ and NH₃. It can be installed on **all types of tanks**:

- Single vertical tanks
- Horizontal tanks on enclosed outdoor units
- Double vertical tanks
- Inclined horizontal tanks

How does the DNI work?

The Matelex Intelligent Level Detector measures the liquid level by assembling a column, weighed by a strain gauge. This column, made by the refrigeration installer, will be connected to the liquid receiver (HP) via hoses and reflects the refrigerant level in the receiver. Pressure and temperature sensors complete these measurements and make it possible to find out the density of the refrigerant, and therefore the level of liquid

present in the receiver. The data, gathered every 2 to 3 seconds, allows the detection algorithms to perform the equivalent of **24 leak detections per day**.

How are DNI alarms triggered?

In the event of a leak, the operator/user is notified by e-mail and/or locally. Two types of alarms ensure notification is sent as soon as a leak occurs:

- **Statistical alarm:** this is determined by the DNI following a learning period. This learning period allows the DNI to recognise the normal operation of a refrigeration installation in order to determine a reference level. This then allows the DNI to trigger the right alarm at the right time. It is a so-called "Expert" system, capable of learning the normal operation of an installation in order to identify the slightest anomaly (detection accuracy $\pm 4\text{mm}$).
- **Low level alarm:** This is a classic low level alarm. This safety back-up ensures an alert is sent if the refrigerant falls below a critical level, determined by the operator/user of the DNI.

Sentinelle web interface: remote facility management

Sentinelle is the management and administration site for DNIs. It contains contours, operating data for the installation (pressures, temperatures, etc.) as well as a range of technical and regulatory monitoring tools. Sentinelle allows leakage alerts to be received by email, but also to be managed remotely, and gives access to advice dedicated to improving the performance of installations.

Connection to the Sentinelle interface provides the DNI with an additional one year warranty.

Connecting to the Sentinelle Interface:

Connecting to Sentinelle offers many advantages such as a graphic display of operations and remote, real-time monitoring of installations, assistance in identifying faults, access to alerts, and technical advice, etc.

Several connection options are available:

- Wi-Fi
- Ethernet/RJ45 cable
- 3G/4G modem



Practical information:

Package dimensions and weight: 310 x 310 x 170 mm for approx. 2.4 kg

Delivery time: 2 weeks from receipt of order

[Request a quote](#)