

new art laboratories



Our solution for  
quantitative and qualitative  
rapid test evaluation

# Colibri

## Point-of-care reader

The smallest rapid test analyser in the world

- Rapid tests
- Laboratory diagnostics
- Laboratory services
- Consultation & service



**Available parameters:**  
Quantitative CRP and PCT,  
influenza, rota-adenovirus,  
strep A, H. pylori, RSV

## Colibri point-of-care reader

### Pocket-sized analyses

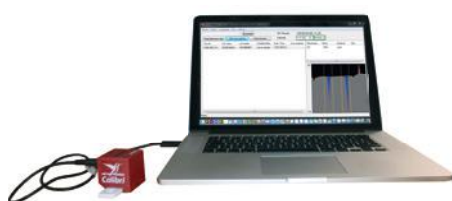
At just 4 cm wide, the nal von minden Colibri is the optimal tool for the qualitative and quantitative analysis of rapid tests. It provides fast and precise results and is a cost-effective solution for your medical practice. The device is extremely

user friendly and operated using just one button. There are no waiting times and quality controls are easy to carry out. Data can be transferred easily to a PC via a USB cable for documentation.

- ✓ Small (4 x 4 x 4 cm)
- ✓ Lightweight (40 g)
- ✓ Fast
- ✓ Precise
- ✓ User friendly (just one button)
- ✓ Cost-effective
- ✓ Simple quality control
- ✓ Result documentation via data transfer to a PC
- ✓ No waiting times

## Using the device

- 1 Turn on the device by pressing the button. The last saved result will be displayed.
- 2 Pressing the button again will take you to the start screen.
- 3 To carry out a reading, press the button again. Depending on how long the button is pressed for, the reading will start immediately (pressing for < 1 sec) or after a programmed time (pressing for  $\geq 1$  sec).  
The Colibri will prompt you to place an RFID card with LOT-specific calibration data on top of the device.
- 4 Place the provided RFID card onto the Colibri prior to each reading.
- 5 Once the data has been successfully transferred, the reading can commence.
- 6 Place the Colibri on top of the test and press the button again.  
Information on sample collection and test procedures can be found in the package inserts.
- 7 Depending on how long the button is pressed for, the timer or a reading in progress will be displayed.
- 8 After approx. 3 seconds, either qualitative or quantitative results will be displayed on-screen.




The device's internal storage is able to save 100 analyses. A USB cable can be used to transfer data to a PC. The DataViewer software enables a clear overview of the data.

### Daily function check:

- 1 Place the Colibri over the QC cassette provided. (The QC cassette has a shelf life of 2 years and can be used repeatedly.)
- 2 Place the accompanying RFID card onto the Colibri in order to transfer the data.
- 3 The Colibri will indicate that the function check was successful.





For quantitative CRP results in the range of 2-150 mg/L

## C-reactive Protein (CRP)

### What is CRP?

C-reactive protein (CRP) is an acute phase protein produced in response to inflammation, infections and tissue damage. It reacts faster and more clearly than other parameters (e.g. fever, increase in leucocytes).

The measurement of CRP – especially in children – is preferable to the measurement of blood sedimentation rate (BSR), as the required amount of blood is much lower, the testing time shorter and the response to treatment easier to observe. A verified increase in CRP value is an important indicator of acute and chronic inflammation, autoimmune or immune complex diseases, as well as tissue necrosis or malignant tumours.



## Which values are of interest?

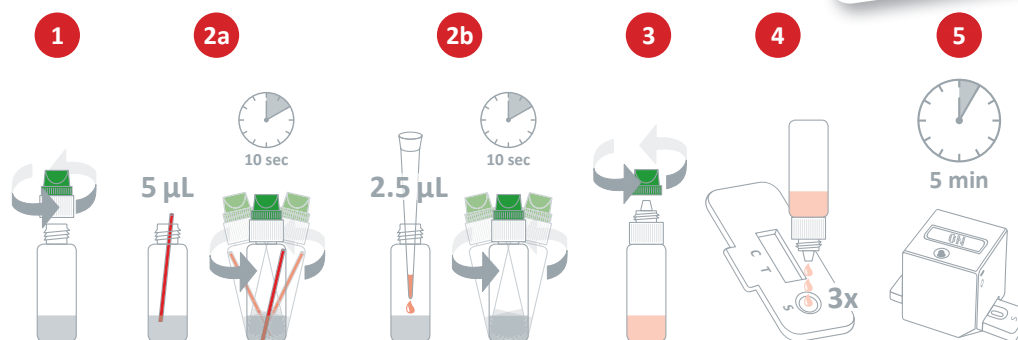
CRP is particularly suitable for differentiating between bacterial and viral infections, as the concentration rises markedly in bacterial infections but only slightly with viruses. An elevated CRP concentration is always a sign of illness, and it is often the case that raised concentrations precede clinical symptoms. Ongoing monitoring is always preferable to drawing

conclusions from a single analysis. For this reason, in cases of reasonable suspicion, rapid test screenings should be performed several times. Using the Colibri point-of-care reader alongside the NADAL® CRP quantitative test cassette, CRP levels between 2mg/L and 150 mg/L can be determined quantitatively.

CRP [mg/L]	Interpretation
< 10	Very mild inflammation — causes can include obesity, diabetes mellitus type 2 and atherosclerotic cardiovascular diseases.
10 - <40	Mild inflammation — causes can include localised abscesses, mild trauma from operations/accidents, heart attack, deep vein thrombosis, inactive rheumatic disease, a metastasised malignant tumour or isolated viral infections.
40 - <100	Moderate inflammation — causes can include severe inflammation such as pyogenic cystitis, bronchitis, dental abscess, UTI or genital infection.
≥ 100	Severe inflammation — causes can include acute generalised bacterial/fungal-based infections, as well as severe tissue damage, multiple traumas or major surgical procedures.

### Test procedure:

Sample material:  
Whole blood/serum/plasma



### Product overview:

Product	Product code	Pack size
NADAL® CRP Quant test cassette (2-150 mg/L)	312021NBUL-20 312021NBUL-40	20 tests 40 tests
Positive control	311011	1 x 1 mL Level 1 1 x 1 mL Level 3
nal von minden Colibri point-of-care reader (incl. USB cable + DataView software)	2150001EN	1 device



NADAL® Procalcitonin  
Quant – For quantitative  
results in the range of  
0.5-20 ng/mL

## Procalcitonin (PCT)

### What is procalcitonin?

Procalcitonin (PCT) is a key marker for systemic inflammation and sepsis. The blood of a healthy individual contains only small amounts of PCT (< 0.5 ng/mL), while serum PCT concentrations in individuals with systemic or severe infections can rapidly soar to very high levels in correlation with disease severity.

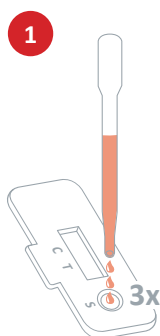
The measurement of PCT supports a prompt diagnosis in the face of serious bacterial infections, sepsis and inflammation, thus aiding clinical decision making and the initiation of effective treatment. This in turn avoids unnecessary antibiotics and drug resistance.

## Which values are of interest?

Procalcitonin reacts quicker than CRP (first increasing after approx. 2 hours), reaching maximum values within 12-24 hours (CRP after 24-48 hours). Once the cause has been eliminated, levels will decrease with a half-life of 25-35 hours.

Procalcitonin [ng/mL]	Interpretation
< 0.5	Within normal range. Local bacterial infection possible, systemic infection (sepsis) unlikely. However, inflammation or non-bacterial causes cannot be ruled out.
0.5 - < 2.0	Slightly raised levels, moderate infection possible
2.0 - < 10.0	Significantly raised levels, (systemic) infection probable
≥ 10.0	Severe systemic infection, sepsis, or other inflammation

### Test procedure:



Sample material:  
Serum/plasma



### Product overview:

Product	Product code	Pack size
NADAL® Procalcitonin Quant test cassette (0.5-20 ng/mL)	2190010NBUL-20	20 tests
nal von minden Colibri point-of-care reader (incl. USB cable + DataViewer software)	2150001EN	1 device



- ✓ Clear results in all lighting conditions
- ✓ Integrated timer function
- ✓ Objective evaluation
- ✓ Qualitative results

## Influenza A/B

### What is influenza?

Influenza is a highly contagious viral infection affecting the upper respiratory system. It is characterised by antigenic variation, seasonality and its effects on the general population. Of the two main types of influenza viruses (A and B), influenza A is the

most prevalent and is also associated with the most serious epidemics. Its subtypes are differentiated by the antigenic variation of surface glycoproteins (haemagglutinin and neuraminidase).





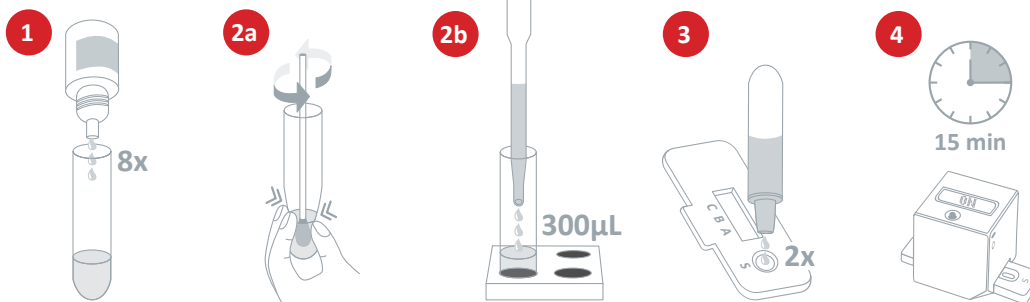
## Why is a diagnosis important?

Influenza can lead to severe complications such as bronchitis or pneumonia, particularly in children, elderly people or those with chronic respiratory disease. As there are several other viral infections that display similar symptoms to influenza, laboratory tests are required in order to distinguish it from other acute respiratory infections. Effective antiviral medications are available, which work best

if administered early (within 48 hours after the onset of the illness). With a sensitivity of almost 100 % after 3 days, virus isolation remains the gold standard in influenza diagnoses. Nevertheless, both healthcare support for the patient and economic costs could be improved by the use of rapid, specific and sensitive tests for antigen detection, in turn enabling successful antiviral treatment.


### Test procedure:

Sample material: Nasal aspirate, rinse fluid or swab/nasopharyngeal swab



### Product overview:

Product	Product code	Pack size
NADAL® Influenza A/B Scan test cassette	242006NBUL-10	10 tests
nal von minden Colibri point-of-care reader (incl. USB cable + DataViewer software)	2150001EN	1 device

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- ✓ Clear results in all lighting conditions
  - ✓ Integrated timer function
  - ✓ Objective evaluation
  - ✓ Qualitative results

## Group A streptococcus (Strep A)

### What is strep A?

Group A beta-haemolytic streptococci (bacterial strains) are responsible for a number of diseases. They are often the main cause of infections of the upper respiratory tract, such as acute pharyngitis (tonsillitis) and scarlet fever. Children aged 5 to

15 are particularly susceptible and are frequently infected with *Streptococcus pyogenes*. Streptococcal pharyngitis is mainly transferred by either airborne droplets or direct contact from person to person. The incubation period is usually 1-3 days.



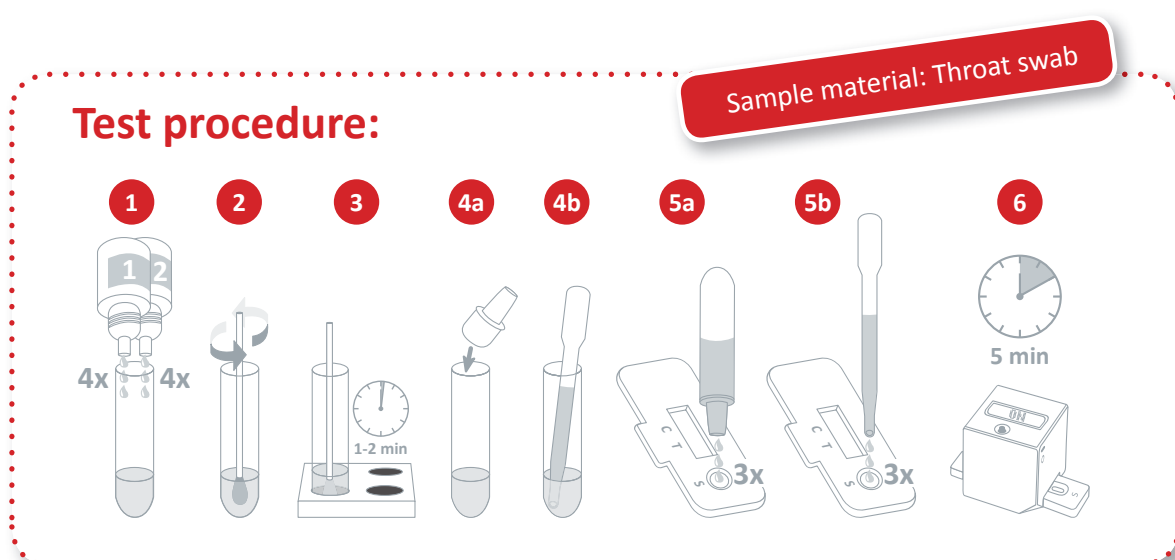
## Why is a diagnosis important?

It has been shown that the early diagnosis and treatment of strep A pharyngitis reduces the severity of symptoms and further complications, such as rheumatic fever and glomerulonephritis. Due to unspecific clinical symptoms, appropriate diagnostics are necessary to determine or rule out a viral cause. We have developed the NADAL® Strep A Scan test to support you even further in making a correct diagnosis. This test, in conjunction with the Colibri reader, enables weak positive results to be clearly read — regardless of lighting conditions. Additionally, the integrated timer function replaces the usual waiting time. The previous test result can be retrieved at any time.

The early detection of streptococcal pharyngitis and subsequent intervention is particularly important for children, as it enables a treatment that


- ✓ shortens the course of the illness
- ✓ reduces the severity of symptoms
- ✓ reduces the probability of complications
- ✓ lowers the chances of passing on the infection

An acute streptococcal infection, if left untreated, can be contagious for up to 3 weeks. An effective antibiotic treatment reduces this period to 24 hours.



## Product overview:

Product	Product code	Pack size
NADAL® Strep A Scan test cassette	222049NBUL-20	20 tests
nal von minden Colibri point-of-care reader (incl. USB cable + DataViewer software)	2150001EN	1 device

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- ✓ Clear results in all lighting conditions
  - ✓ Integrated timer function
  - ✓ Objective evaluation
  - ✓ Qualitative results

## Rota- and Adenoviruses

### Why is the diagnosis of rotaviruses so important?

Rotaviruses are the main cause of acute gastroenteritis, especially in younger children. Their discovery and link to gastroenteritis in infants in 1973 signalled an important step in the study of non-bacterial gastroenteritis. The rotavirus infection route is usually faecal-oral, with an incubation period of 1-3 days. Stool samples collected 2-5 days after infection are particularly suitable for antigen detection, but rotaviruses remain detectable until the diarrhoea subsides.

For high-risk groups such as infants, the elderly or those with weakened immune systems, the

infection can be deadly. In temperate climates, rotaviruses mostly occur during the winter months, at which time both endemics and epidemics affecting several thousand people have been observed. Rotaviruses have been detected in about 50% of children treated as inpatients with acute gastroenteritis. The viruses replicate in the nucleus and cause a cytopathic effect (CPE). As it is extremely difficult to cultivate rotaviruses in cell culture, their isolation for diagnostic purposes is uncommon. Instead, techniques like the immunoassay were developed to detect rotaviruses in stool samples.



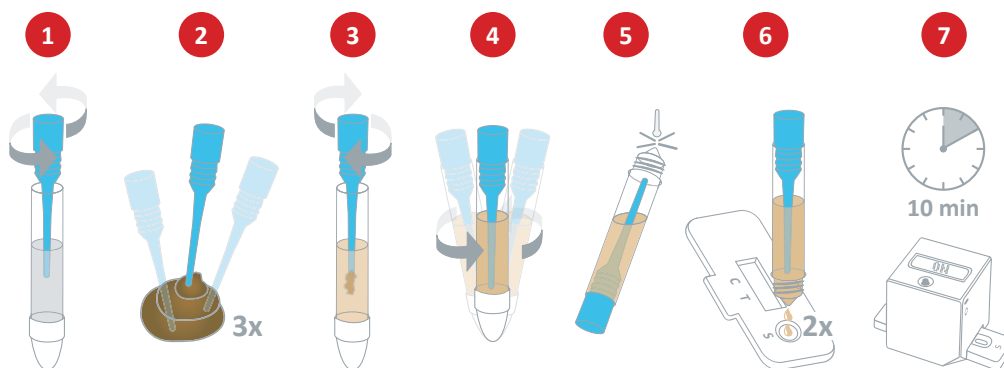
## Why is the diagnosis of adenoviruses so important?

Acute diarrhoea in infants is a major cause of morbidity worldwide and one of the most common causes of mortality in developing countries. Research has shown that enteral adenoviruses (such as Ad40 and Ad41) are, after rotaviruses, the most common cause of diarrhoea in infants. These viral pathogens have been noted across the globe and can cause diarrhoeal disease in children throughout the year. Most frequently, children younger than 2 years are affected; however patients of every age can be

infected. Further studies showed that 4-15 % of all hospitalised cases of viral gastroenteritis are linked to adenoviruses. A fast and accurate diagnosis of adenoviruses supports patient management and the etiological investigation of gastroenteric diseases. Other diagnostic methods, such as electron microscopy or nucleic acid hybridisation are expensive and labour intensive. Since adenovirus infections are usually self limiting, such analyses are not typically necessary.

### Test procedure:

Sample material: Faeces



### Product overview:

Product	Product code	Pack size
NADAL® Rota-Adenovirus Scan test cassette	481049NBUL-10	10 tests
nal von minden Colibri point-of-care reader (incl. USB cable + DataView software)	2150001EN	1 device



- ✓ Clear results in all lighting conditions
- ✓ Objective evaluation
- ✓ Integrated timer function
- ✓ Qualitative results

# Helicobacter pylori (H. pylori)

## What is H. pylori?

*Helicobacter pylori*, also known as *Campylobacter pylori*, is a spiral-shaped, gram-negative bacterium with typical flagella. The bacterium infects gastric mucosa by secreting vacuolating cytotoxin A (VacA) and causes various gastroenteric diseases

such as non-ulcerous dyspepsia, gastritis or gastric and duodenal ulcers.

*H. pylori* is classified as a group 1 carcinogen and can increase the risk of stomach adenocarcinomas.

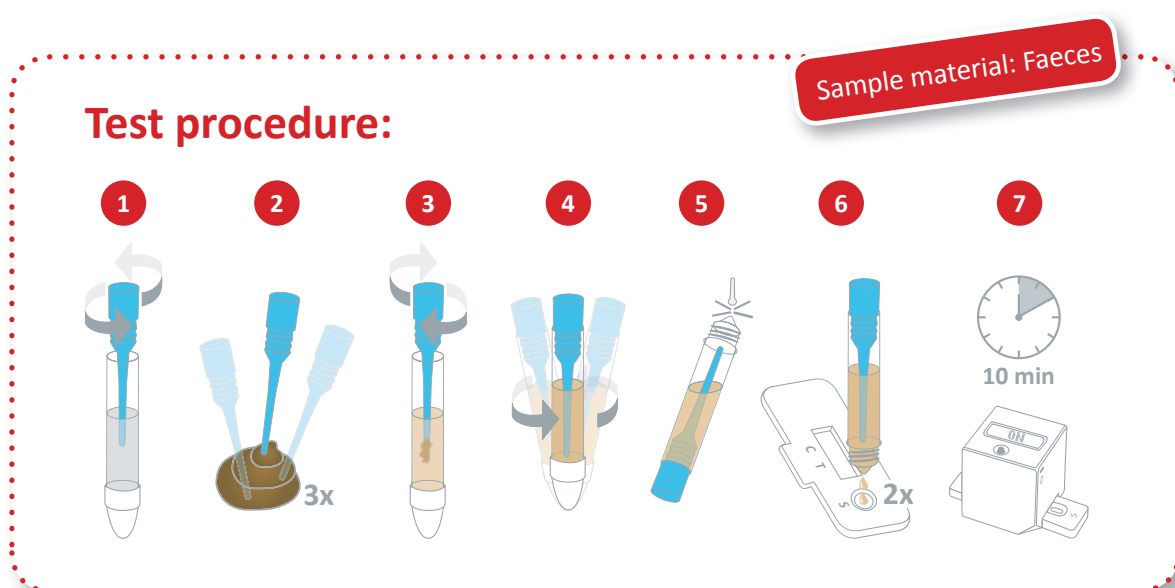


## Why is a diagnosis important?

Various *H. pylori* strains have been isolated. A strain expressing the cytotoxin-associated gene A (CagA) antigen has been found to be highly immunogenic, and is of particular clinical importance due to its association with cytotoxic factors. It has been widely noted in specialist literature that infected patients possessing antibodies against CagA are at a five times higher risk of developing gastric cancer than a reference group infected with a CagA negative

bacterial strain. The presence of CagA antibodies determines the persistence of a *H. pylori* infection and also has an influence on ulceration.

The binding of the CagA antigen to other antigens, such as CagII and CagC, seems to trigger a sudden inflammatory response, which may provoke peptic ulceration, allergic episodes and decrease the efficacy of treatment.



## Product overview:

Product	Product code	Pack size
NADAL® <i>H. pylori</i> Ag Scan test cassette	262004NBUL-10	10 tests
nal von minden Colibri point-of-care reader (incl. USB cable + DataView software)	2150001EN	1 device



- ✓ Clear results in all lighting conditions
- ✓ Integrated timer function
- ✓ Objective evaluation
- ✓ Qualitative results

# Respiratory Syncytial Virus (RSV)

## What is RSV?

Respiratory syncytial virus (RSV) is a major cause of respiratory illness in all age groups. It is the most common cause of serious respiratory tract infections in infants and children under 4 years of age, and is also responsible for severe respiratory problems in elderly and immunocompromised patients, giving

rise to high mortality rates. Pneumonia and bronchitis are the two most frequent severe infections prevalent in infants aged 2 to 6 months. Infection in older children and adults may be mild and is usually self-limiting, causing nasal stuffiness and discharge which is indistinguishable from a common cold.





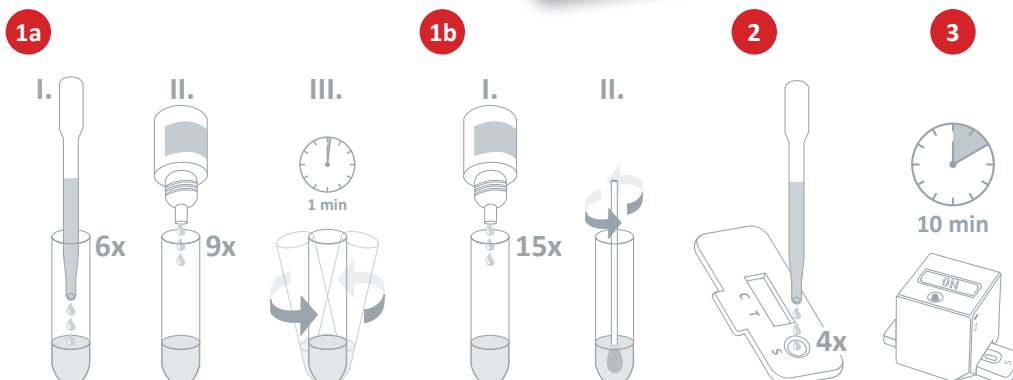
## Why is a diagnosis important?

In the USA, 50 % of RSV infections are responsible for about 70 % of bronchitis cases and result in 80,000 to 125,000 hospitalisations annually. Those who require hospitalisation tend to be newborns and individuals who suffer from asthma, lung disorders or heart problems. Moreover, bronchitis caused by RSV in the first year of life is one of the most important risk factors for the subsequent development of asthma. It is a highly contagious disease spread through contact with respiratory secretions. It is also a common cause of nosocomial

infections, the prevalence of which increases during community outbreaks by the way of casual contact. RSV affects both the upper and lower respiratory tract, but pneumonia and bronchiolitis are the most prevalent lower respiratory illnesses. Bronchiolitis is marked by a cough, wheeze, the onset of dyspnea, an increase of respiratory rate up to 40 breaths per minute and bluish discoloration of the skin around the mouth. Auscultatory crackles and respiratory distress are common symptoms of pneumonia.

Sample material:  
Nasopharyngeal swab, rinse fluid  
or aspirate

### Test procedure:



### Product overview:

Product	Product code	Pack size
NADAL® RSV Scan test cassette	491008NBUL-20	20 tests
nal von minden Colibri point-of-care reader (incl. USB cable + DataView software)	2150001EN	1 device

## Technical data

Description	Reader device for lateral flow assays
Test format	Test cassettes
Measurement results	Quantitative, semi-quantitative or qualitative results Analysis of up to 3 parameters per test cassette
Dimensions	41 mm x 41 mm x 40 mm (Length x breadth x height)
Weight	40 g
Display	LCD; 14 segment display
Operation	Single button operation
Storage capacity	max. 100 readings
Reading time	ca. 3 sec.
Power usage	3 CR2032 (3V/230 mAh) batteries or USB for connection to PC/ laptop/USB adapter
Ports	4 pin, 2.5 mm jack plug for power supply (instead of batteries) and data transfer to PC/laptop
Configuration	Lot-specific configuration using RFID technology
Scan field of view	min. 4 mm wide max. 18 mm long
Lighting	Wave length 525 nm
Signal generator	Buzzer
Ambient temperature (during operation)	10 °C - 35 °C
Humidity (during operation)	20 % - 85 %
Storage temperature	-30 °C - 80 °C
Storage humidity	20 % - 85 %
Timer function	Determined alongside calibration data
Protection category	IP 20

# NADAL® Medical rapid tests

## For just about every need

- ✓ Autoimmune diseases
- ✓ Bacteriology
- ✓ Cardiology
- ✓ Gynaecology & Obstetrics
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- ✓ Oncology
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- ✓ Tropical medicine
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- ✓ Urology

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