

# Nano-SIM

The smallest SIM form factor on the market

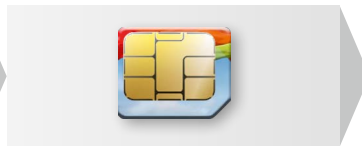


ID-1: Standard credit card size, 85.6 x 54 mm (4622 mm<sup>2</sup>)

## SIM form factors in comparison



Plug-in (1989)  
15 x 25 mm (375 mm<sup>2</sup>)



Micro-SIM / 3FF (2004)  
15 x 12 mm (180 mm<sup>2</sup>)



Nano-SIM / 4FF (2012)  
8.8 x 12.3 mm (108 mm<sup>2</sup>)



In comparison, the smallest SIM on the market is the M2M SIM MFF2 (machine-to-machine form factor 2, 2010)

## Overview

When the GSM network first appeared, mobile devices resembled bricks or even briefcases, and SIM cards were the size of credit cards. The subsequent miniaturization of the phones led to the standardization of smaller SIMs, the Plug-in SIM, and later the Mini-UICC also known as 3rd form factor (3FF). With the in-

troduction of Apple's iPad, the 3FF, or the Micro-SIM as it was then called, established itself widely in the market.

Nevertheless, the trend towards miniaturization of the SIM card is still not over. The latest form factor which is currently in discussion at ETSI (European Telecommunications Standards Institute) is the 4th form factor

(4FF) or Nano-SIM. Measuring 12.3 x 8.8 mm, the Nano-SIM is about 30 percent smaller than the Micro-SIM. Even the thickness (0.7 mm) of the card has been reduced by about 15 percent – a tremendous technical challenge.

The Nano-SIM offers device manufacturers the crucial advantage of freeing up extra space for other mobile phone

components such as additional memory or larger batteries. Popular smart phones in particular have to strike a balance between the need for components that are more powerful but bulkier and a slim design. The reduced volume of the 4FF gives manufacturers the opportunity to produce devices that are thinner and more appealing.



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## The solution

While it may seem easy, the effort that goes into a card manufacturer's logistics chain to provide a smaller and thinner card should not be underestimated. G&D is at the forefront of the standardization in at ETSI and actively helped to develop an appropriate solution.

The Nano-SIM will still be delivered in an ID-1 frame just like most Plug-in and Micro-SIM cards. Therefore, the Mobile Network Operator will still be able to manage the new form factor in its logistics system.

Although the Nano-SIM is much smaller and has a new housing design, it continues to use the same smart card chips as existing cards. The Nano-SIM form factor is available for all major G&D SIM platforms, comprising a wide range of available memory.

The contact area of the card has six contacts and is well suited for new technologies such as NFC with SWP (Single Wire Protocol).

## Packaging

To make using the card easier, G&D offers various forms of value added packaging. A wide selection of packaging options are provided for indi-

vidual market levels and logistics concepts.

The slider card is a convenient and environmentally friendly option. Made entirely of paper, this ID-1 sized package holds the Nano-SIM without a frame in a small tray which allows for removal that is easy, accessible, and secure.

Another attractive packaging option is the folder pack with a blister cap containing the Nano-SIM. It highlights the SIM and can easily accommodate additional material, e.g. manuals, etc.

G&D is able to provide customized solutions for all kinds of needs!



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