

1. Telefonica M2M Global SIM

Telefonica has developed a range of SIM cards to meet the specific needs of the Global M2M market.

The portfolio includes standard plastic, industrial and solderable SIM cards. The industrial card combines a dedicated M2M SIM platform with enhanced silicon capabilities and a high temperature plastic housing to guarantee a longer lifespan and reliable performance in harsh environments. The solderable cards can be used in a surface mount machine for placement directly onto Printed Circuit Boards for use in very harsh environments, or in solutions with space or security constraints.

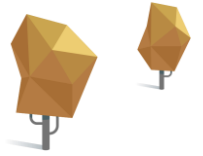
The Global SIM is designed to respond to the critical needs of robustness and longevity demanded by the applications encountered in M2M deployments. It can be shipped to our customer premises around the world, pre-provisioned and ready for test or use.



The portfolio also addresses critical business process needs by creating an opportunity to integrate the SIM at an early stage. This enables our customers to streamline logistics and to make manufacturing processes simpler and more cost effective.

Telefonica SIM cards can support the Remote Subscription Management solutions and Telefonica is working with standards bodies to develop new capabilities. All the Global M2M SIM variants can be supplied with the Remote Subscription Management features. This enables the IMSI of the card to be changed remotely thereby swapping the card onto another MNO network. Telefonica has built the new operational models to overcome regulation constraints and facilitate the customer services strategies.

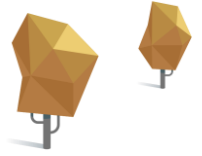
The Telefonica M2M SIM card portfolio includes a simplified SIM profile in all cards, robust form factors, packaging that is resistant to harsh environments, longer life span silicon options, smart remote management capabilities with packaging and logistics to address the needs of M2M solutions.



2. Product Range






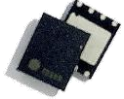
Product Name	M2M Commercial Plug In	M2M Commercial Micro SIM	M2M Commercial nano-SIM	M2M Industrial Plug In High Temperature	M2M Industrial Micro SIM High Temperature	M2M Industrial Solderable VQFN8
Type						
Size	15x25x0.76 mm	15x12x0.76 mm	8.8x12.3x0.67 mm	15x25x0.76 mm	15x12x0.76 mm	5x6x0.8 mm MFF2
	body:85.6x53.98x0.76 mm			body:85.6x53.98x0.76 mm		N/A
Temperature range	-25°C to +85 °C			-40°C to +105°C		-40°C to +105°C
Operating conditions	Standard environmental conditions			Harsh environment conditions (reinforced plastic): <ul style="list-style-type: none"> ○ High / low temperature ○ Shock ○ Humidity ○ Corrosion (Pin plating thicker) environmental conditions 		Harsh environment conditions: <ul style="list-style-type: none"> ○ High/low temperature ○ Shock ○ Humidity ○ Corrosion
Electrical conditions	1.8V; 3V; 5V			1.8V; 3V; 5V		1.8V; 3V; 5V
Erase/write cycles	500k e/w cycles			2 million e/w cycles		2 million e/w cycles
Data retention	2 years at 25C			10 years at 25C		10 years at 25C

Telefonica has developed a simplified SIM profile for the M2M cards which includes various SAT applications to allow faster registration onto the network and provide a remote management capability of the SIM (subject to device capability to support SAT commands).



3. Global M2M SIM Logistics

Telefonica can arrange for SIM delivery in any country around the world based on the locations agreed with the customer. We also work with different SIM manufacturers to ensure high quality in the final product and can cater to the customer's needs in terms of production volumes. The following conditions apply to the M2M SIM types available:

Product Name	M2M Commercial Plug In	M2M Commercial Micro SIM	M2M Commercial nano-SIM	M2M Industrial Plug In High Temperature	M2M Industrial Micro SIM High Temperature	M2M Industrial Solderable VQFN8
Type						
Packaging	Boxes	Boxes	Boxes	Boxes	Boxes	Tape&Reel ¹
Minimum size of order	50 units					300 units
Lead time ²	4 working days (monthly forecast)					13 working days (monthly forecast)
Standard warranty / extension	2 years based on agreed intended use ³			2 years based on agreed intended use ³ . Can be extended up to 5 years		

¹ The Reels are packaged in anti-static moisture-barrier bags, vacuum sealed and including a humidity indicator. Once the bags are sealed in the SIM manufacturer premises, they can be kept 12 months before being opened, once opened the products have to be soldered in max 168h (7 days).

² Lead time to be agreed on project basis. Delivery times vary depending on the type of card, volumes and personalisation options.


³ The warranty applies when the M2M SIM is used in correct environment and appropriate use cases (Warranty exclusion: health, military, aerospace, aviation, rail, nuclear, life support, etc. Industrial range is recommended for vehicle telematics and smart metering).

4. Global M2M SIMs Quality Management

All the M2M SIM products are certified by the Telefonica SIM Certification Centre.

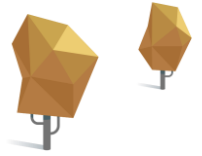
Telefonica sources from a range of SIM suppliers to ensure availability of supply. All suppliers are compliant with Telefonica production audit and quality certification processes. They are also compliant with the following industry certifications that act as proof of organisational competence, manufacturing capabilities and use of industry best practices:

- Company certified with ISO 9001.
- Adhesion to an Environmental Management System (ISO14001, EMAS).
- Certification OHSAS 18001, SA8000.
- VISA, Mastercard, SAS from GSMA, ISO 27000.



Telefonica can work closely with customers to address specific requirements in terms of logistic and quality management.



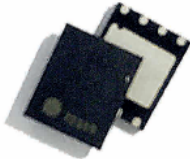




5. The right SIM product for your solution

Telefonica can recommend different M2M SIM product to ensure the right level of reliability and robustness:

Depending on the M2M vertical solution deployed.

M2M SIM	What business needs	Vertical applications
<p>M2M Commercial: Plug In Micro Nano</p> 	<p>Handheld or Indoor Use Low environmental constraints Limited device lifespan</p>	<p>Consumer electronics (eReaders, Personal Navigation devices, game consoles) Home alarms Advertising billboards Indoor security alarms</p>
<p>M2M Industrial: Plug In Micro</p> 	<p>Harsh environmental conditions and usages Longer life deployments Capability to replace the SIM</p>	<p>Aftermarket vehicle telematics Smart metering Outdoor PoS Industrial asset management</p>
<p>M2M Industrial Solderable VQFN8</p> 	<p>Very harsh environmental conditions and usages Longer life deployments Long life devices Industrial manufacturing processes</p>	<p>OEM telematics Outdoor smart metering Industrial asset management</p>

6. Standardisation

Telefonica is an active member of the industry and standardisation bodies in the effort to develop and apply robust and stable standards in M2M which can enable M2M market growth.



- JEDEC_JESD22-A101-B_Steady-State-Temperature-Humidity
- JEDEC_JESD22-A102_Pressure Cooker
- JEDEC_JESD22-A103-C_High-Temperature-Storage-Life
- JEDEC_JESD22-A104-C_Temperature-Cycling
- JEDEC_JESD22-A108_Temperature-Cycling
- JEDEC_JESD22-A117-A_Endurance-Data-Retention-Stress
- JEDEC_JESD22-B102_Solderability
- JEDEC_JESD22-B103-B_Vibration-Variable-Frequency
- JEDEC_JESD22-B104-C_Mechanical-Shock
- JEDEC_JESD22-B108-A_Coplanarity-Test-Surface

Standard Plug In high temperature M2M quality tests

- JESD22-A110/ CQM Mastercard -> Temperature and humidity test (85C/85%RH)
- ISO 10373-1/ CQM Mastercard -> Dimensional
- ISO 7810 / 10373-1 -> Torsional stress
- ISO 7810 / 10373-2 -> Resistance to chemical
- ISO 7810 / 10373-1 -> Dynamic Bending Stress
- IEC 68-2-60 -> Industrial Corrosion
- EN 60068-2-11 ISO 9227 -> Salt Mist Corrosion
- CQM Mastercard TM408 -> Dry Temperature
- CQM Mastercard TM421 -> Roller Test
- CQM Mastercard -> Chisel Test, Wrapping test
- JESD22 – A103 -> Hot Storage
- JESD22-A104 -> Power Temperature Cycling
- JESD-A106-> Thermal shock -50C to +1

7. Customer Benefits

- Increased reliability due to resistance to harsh environment conditions
- Longer lifespan to support long term deployments like smart metering and telematics
- Optimised logistic processes adapted to manufacturing constraints
- Availability of the Remote Subscription Management to overcome regulation constraints

VQFN 8 M2M quality tests

- JEDEC_JESD22-A113-E_Preconditioning-Nonhermetic
- JEDEC_JESD22_A114_ESD Human Body Model
- JEDEC_J-STD-020D_Moisture-Reflow-Sensitivity-Classification-Nonhermetic