

# SIEMENS

## SIMATIC Ident

### RFID system




## SIMATIC RF690L Smartlabel

### Compact Operating Instructions

#### Legal information

#### Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 <b>DANGER</b>
indicates that death or severe personal injury <b>will</b> result if proper precautions are not taken.
 <b>WARNING</b>
indicates that death or severe personal injury <b>may</b> result if proper precautions are not taken.
 <b>CAUTION</b>
indicates that minor personal injury can result if proper precautions are not taken.
<b>NOTICE</b>
indicates that property damage can result if proper precautions are not taken.


If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

#### Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

#### Proper use of Siemens products


Note the following:

 <b>WARNING</b>
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

# 1 Characteristics

The SIMATIC RF690L High Temp Smartlabel is a passive and maintenance-free data carrier. It operates based on the UHF Class 1 Gen 2 technology and is used to store the "Electronic Product Code" (EPC). The transponder also has a user memory.

The SIMATIC RF690L achieves a read distance of up to 4.5 m and can also be mounted on metal.

Smartlabel SIMATIC RF690L	Features	
	Application	Heat-proof UHF label for a wide range of possible applications with high temperatures up to +230 °C on metal.
	Frequency band	<ul style="list-style-type: none"> <li>• Europe: 865 ... 868 MHz</li> <li>• USA/Canada: 902 ... 928 MHz</li> </ul>
	Air interface	According to ISO 18000-6C
	Memory	EPC 96... 480 bits <sup>1)</sup> user memory: 16 ... 64 bytes <sup>1)</sup>
	Write range	<ul style="list-style-type: none"> <li>• Up to 1.5 m <sup>2)</sup></li> </ul>
	Read range	<ul style="list-style-type: none"> <li>• Up to 4.5 m on non-metallic surface <sup>2)</sup></li> <li>• Up to 2.4 m on metal <sup>2)</sup></li> </ul>
	Mounting	Self-adhesive for mounting on metal

<sup>1)</sup> The EPC memory has a default size of 96 bits. When necessary, the EPC memory size can be expanded to 480 bits in steps of 16 bits at the cost of the user memory.

<sup>2)</sup> Depending on the environment

# 2 Ordering data

Table 2-1 Ordering data RF690L

	Article number
SIMATIC RF690L (Europe) Delivery package: 400 labels on the roll	6GT2810-2AG00
SIMATIC RF690L (USA, Canada) Delivery package: 400 labels on the roll	6GT2810-2AG10

### 3 Memory organization

Transponders with an "Alien Higgs 3" chip have an EPC memory with a standard size of 96 Bits (12 bytes). When necessary, the EPC memory size can be expanded to 480 bits (60 bytes) in steps of 16 bits at the cost of the user memory.

The following table shows how many bytes can be added to the EPC memory and how this affects the size of the user memory.

Table 3-1 Size of the EPC memory and effect on the user memory

EPC memory		User memory
[bytes]	[bits]	[bytes]
54 ... 60	432 ... 480	16
46 ... 52	369 ... 416	24
38 ... 44	304 ... 352	32
30 ... 36	240 ... 288	40
22 ... 28	176 ... 224	48
14 ... 20	112 ... 160	56
0 ... 12	0 ... 96	64

### 4 Technical specifications

Table 4-1 Technical specifications of SIMATIC RF690L

<b>6GT2810-2AGx0</b>	
Product designation	SIMATIC RF690L
<b>Memory</b>	
Chip (manufacturer/type)	Alien Higgs 3
Memory configuration	
<ul style="list-style-type: none"> <li>• EPC</li> <li>• User memory</li> <li>• TID</li> </ul>	<ul style="list-style-type: none"> <li>• 96 ... 480 bits <sup>1)</sup></li> <li>• 16 ... 64 bytes <sup>1)</sup></li> <li>• 12 bytes</li> </ul>
Type	EPC Class 1 Gen 2
Write cycles (typical, at 22 °C)	> 100 000
MTBF (Mean Time Between Failures)	50 years
<b>Mechanical specifications</b>	
Material	Plastic
Material surface	PEN ungummed, transparent
Color	Transparent
Antenna material	Aluminum
Type of antenna	Dipole
Imprint	Can be printed using heat transfer technique
Roll core diameter	76 mm
Roll outer diameter	200 mm
Label carrier	Siliconized, opaque paper liner (reverse side is not siliconized)

**Electrical data**

Air interface	ISO 18000-6C
Polarization direction	Linear
Frequency band	<ul style="list-style-type: none"> <li>Europe: 865 ... 868 MHz</li> <li>USA/Canada: 902 ... 928 MHz</li> </ul>
Writing/reading distance	
<ul style="list-style-type: none"> <li>Write</li> <li>Read</li> </ul>	<ul style="list-style-type: none"> <li>Up to 1.5 m <sup>2)</sup></li> <li>Up to 4.5 m on non-metallic surface <sup>2)</sup></li> <li>Up to 2.4 m on metal <sup>2)</sup></li> </ul>

**Permitted ambient conditions**

Ambient temperature	
<ul style="list-style-type: none"> <li>During operation</li> </ul>	<ul style="list-style-type: none"> <li>-25 ... +100 °C</li> <li>Above +100 °C: 20% reduction in the limit distance</li> <li>Above +140 °C: No processing possible</li> <li>At +230 °C: No processing possible; Memory retention tested for 3 cycles each up to 30 minutes;</li> </ul>
<ul style="list-style-type: none"> <li>During transportation and storage</li> </ul>	<ul style="list-style-type: none"> <li>-25 ... +100 °C</li> </ul>
Distance from metal	Suitable for direct attachment to metal
Degree of protection	IP67

**Design, dimensions, and weight**

Dimensions (L x W x H)	<ul style="list-style-type: none"> <li>Europe: 88 × 25 × 1.6 mm</li> <li>USA/Canada: 77 × 25 × 1.6 mm</li> </ul>
Weight	Approx. 5 g
Type of mounting	Single-sided adhesive (self-adhesive labels), acrylate glue

<sup>1)</sup> The EPC memory has a default size of 96 bits. When necessary, the EPC memory size can be expanded to 480 bits in steps of 16 bits at the cost of the user memory.

<sup>2)</sup> Depending on the environment

## 5 Dimension drawing

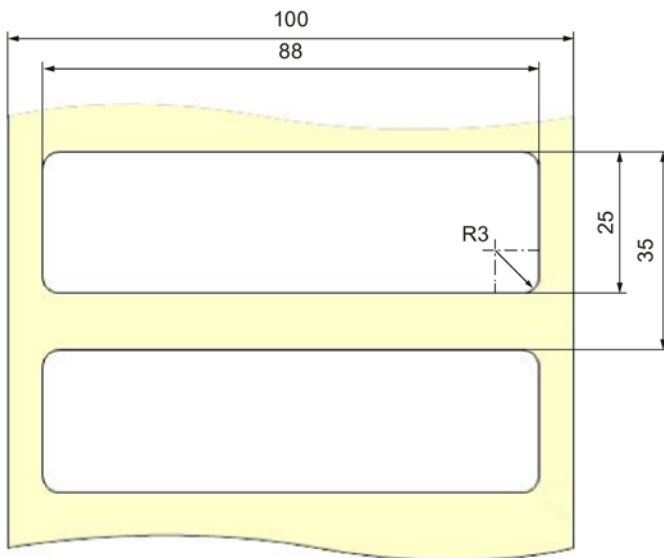


Figure 5-1 Dimension drawing RF690L (Europe, article number: 6GT2810-2AG00)

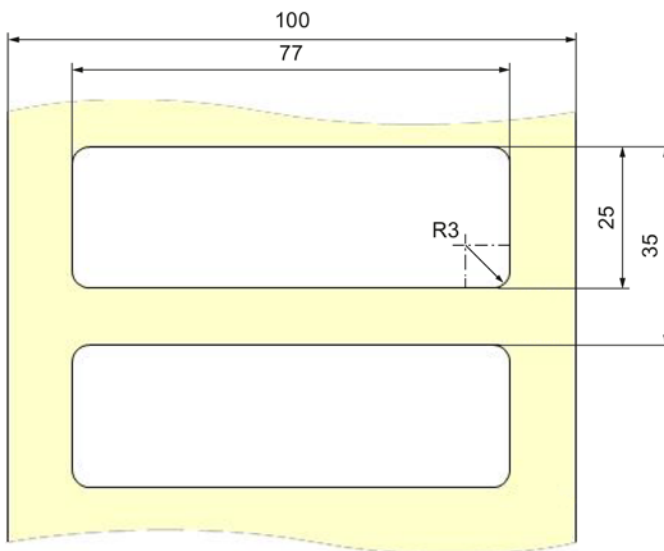


Figure 5-2 Dimension drawing RF690L (USA/Canada, article number: 6GT2810-2AG10)

All dimensions in mm

## 6 Storage and transportation

### NOTICE

#### Notes on storage and transportation of rolls

Note the following information on the storage and transportation of rolls:

- Protect the transponders from direct sunlight and heat (e.g. heating appliances).
- Prior to use, store the label rolls in the polyethylene bag or the shrink film of the original packaging.
- Store the label rolls in a cool and dry location.  
Ideal conditions: 18 °C ±5 °C, 40-60 % humidity
- Stack several label rolls lying flat and centered one above the other.
- Avoid external pressure (e.g. a narrow box).

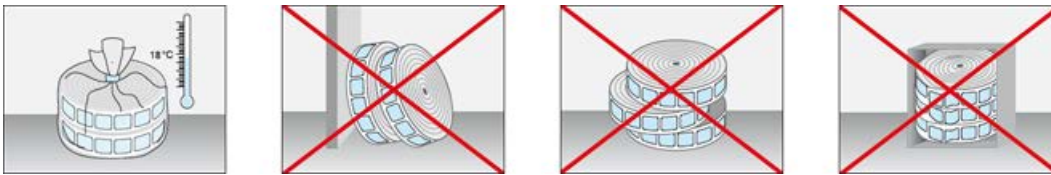


Figure 6-1 Storage of transponders

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### Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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SIMATIC RF690L Smartlabel  
C79000-G8976-C364-01, 04/2014