

SIMATIC RF650R	6GT2811-6AB20-*AA0
SIMATIC RF680R	6GT2811-6AA10-*AA0
SIMATIC RF685R	6GT2811-6CA10-*AA0

Getting Started

Purpose of the document

With this document, you can commission the SIMATIC readers RF650R, RF680R and RF685R of the SIMATIC RF600 system quickly and simply. It also explains how to test the basic functionality of the reader (reading RFID UHF transponders) after commissioning.

Concept of the warning notices

This manual contains notices which you should observe to ensure your own personal safety, as well as to protect the product and connected equipment. Notices relating to your personal safety are highlighted by a warning triangle; notices relating to property damage only do not have a warning triangle. Warnings in descending order according to the degree of danger are shown as follows.



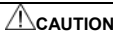
DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.



WARNING

indicates that death or severe personal injury **can** result if proper precautions are not taken.



CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

CAUTION

indicates that damage to property can result if proper precautions are not taken.

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

Qualified personnel

The product/system belonging to this documentation may only be handled by **qualified personnel** for the intended purpose taking into account the documentation relating to the intended purpose and, in particular, the safety and warning notices it contains. Due to training and experience, qualified personnel is capable of recognizing risks and avoiding possible dangers when handling these products/systems.

Correct usage of Siemens products

Note the following:



WARNING

Siemens products may only be used for the applications indicated in the catalog and in the relevant technical documentation. If third-party products and components are used, these must be recommended or approved by Siemens. These products can only function correctly and safely if they are transported, stored, set up, mounted, installed, commissioned, operated and maintained correctly. The permitted environmental and ambient conditions must be adhered to. Notices in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining designations in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer

We have checked the contents of this manual for agreement with the hardware and software described. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. However, the data in this manual is reviewed regularly and any necessary corrections included in subsequent editions.

Safety notices

The following safety notices must be observed when installing and operating the readers and during all work involved such as mounting, connecting up, replacing devices or opening the device.



WARNING

Safety extra low voltage

The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS). (This does not apply to 100 V...240 V devices.) This means that only SELV / LPS (Limited Power Source) complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals. The power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (n) (ANSI / NFPA 70). **There is an additional requirement if devices are operated with a redundant power supply:** If the equipment is connected to a redundant power supply (two separate power supplies), both must meet these requirements.



WARNING

Opening the device

Do not open when energized.

CAUTION

Protection of the external 24 VDC power supply

If power is supplied to the module over longer 24 V power cables or networks, the coupling in of strong electromagnetic pulses onto the power supply cables is possible. This can be caused, for example by lightning strikes or switching of higher loads. The connection of the external 24 VDC power supply is not protected from strong electromagnetic pulses. Provide suitable surge protection for cables that may be hit by lightning.



WARNING

Read the manual of the SIMATIC controller you are using

Prior to installation, connecting up and commissioning, read the relevant sections in the manual of the SIMATIC controller being used. When installing and connecting up, keep to the procedures described in the manual.

CAUTION

Installing/uninstalling with power off

Wire up the PC or the SIMATIC controller and the modules and readers to be connected only when the power is off. Make sure that the power supply is turned off when installing/uninstalling the devices.

CAUTION

Maintaining the degree of protection IP65 with RF680R and RF685R

Connect all external plugs and use the protective caps to maintain the degree of protection IP65.

Further information

You will find more detailed information on the SIMATIC Ident products here:

- "SIMATIC RF600" system manual
- "SIMATIC RF650R/RF680R/RF685R" configuration manual
- "ReadMe_OSS"
- Support pages: <http://support.automation.siemens.com>

Setup

For commissioning, you require at least the following components:

- RF650R, RF680R or RF685R reader
- Wide-range power supply unit
- Connecting cable reader ↔ wide-range power supply unit
- Ethernet/PROFINET cable
- Transponder (EPC global Class 1 Gen 2)

For the RF650R and RF680R readers you also require the following:

- Antenna
- Antenna cable

Connecting the reader

Follow the steps below to connect the reader:


1. Mount the reader.
2. Connect the reader to the PC or the SIMATIC controller using an Ethernet cable.
 - For the Ethernet connection of the RF650R reader, use a connecting cable with RJ-45 plugs.
 - For the PROFIBUS connection of the RF680R/RF685R reader, use a connecting cable with M12 plugs (4-pin).
3. If necessary, connect the reader to one or more external antennas.
4. Connect the reader to the power supply using the connecting cable.

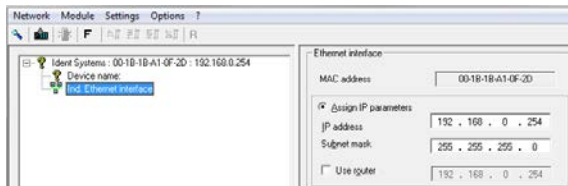
Once you have connected and turned on the power supply, the reader starts up. During this time, the operation and status LEDs (RF680R/RF685R) / "PRE" LED (RF650R) light up or flash for several seconds. When the status LEDs or "PRE" LED stop flashing and the "R/S" LED is lit/flashes green, the reader startup is complete and the reader is ready for operation.

Illustration	Description
	Interfaces of the RF680R/RF685R readers ① Digital I/O interface (M12, 12-pin) ② Power supply 24 VDC and RS-422 (M12, 8-pin) ③ Ethernet interface, TCP/IP (M12, 4-pin) ④ Ethernet interface, TCP/IP (M12, 4-pin)
	Interfaces of the RF650R reader ① Digital I/O interface (M12, 12-pin) ② Power supply 24 VDC and RS-422 (M12, 8-pin) ③ Ethernet interface, TCP/IP (RJ-45, 8-pin)
	Antenna connectors of the readers 4 x 0.5 mm or 1 x 1.5 mm antenna connector for external antennas (RP-TNC)

The RF650R reader ships from the factory with the IP address "192.168.0.254". In the factory settings, the RF680R and RF685R readers are set to DHCP.

Follow the steps below to assign a new, unique IP address and a unique device name to the reader:

8. Click on "Assign name" to assign a unique device name to the reader.
9. Click the  symbol to transfer the settings to the reader.
10. Confirm the following dialog box with "Yes".
11. Check the setting by searching for the reader again.
12. Make sure that your PC / PG is located in the same address range.



Follow the steps below to start the WBM:

- Click the symbol to transfer the configuration to the reader.

Follow the steps below to configure the read point:

- Click the symbol to transfer the configuration to the reader.

Description:

Radiated power (ERP): dBm mW

Gain: dBi dB Use parameter on all antennas

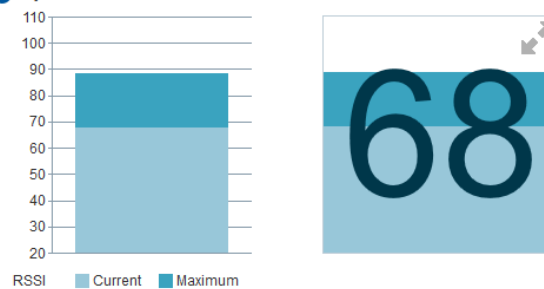
Follow the steps below to optimize the antenna adjustment:

4. In the "RSSI display" area, you can see the current (light blue) and maximum reached (dark blue) RSSI values.

Transponder is not identified


Optimize the antenna adjustment until the maximum possible RSSI value is reached.

3 Adjust antenna:



- Secure the antenna.






Follow the steps below to detect the activation power:

- Click the "Apply" button to transfer the value entered in the "Radiated power" input box of the "Settings - Read points" menu item.
- Click the  symbol to transfer the configuration to the reader.

Optimizing the radiated power

Transponder list

Select transponder: Identified transponders ☐ EPC-ID in ASCII format

EPC-ID	Antenna	Mos. power	Power	RSOI min	RSOI max	Acquisition cycles	Date / time
 A9600000000000000000000000000740	2,1	5,75	30	59	73	234	10/16/2014 14:16:07
 A9600000000000000000000000000739	1	15	30	58	71	66	10/16/2014 14:16:13
 A9600000000000000000000000000736	2,1	20	30	37	50	84	10/16/2014 14:16:16
 A9600000000000000000000000000738	1	21	30	54	62	30	10/16/2014 14:16:16
 A9600000000000000000000000000737	2,1	21	30	36	52	64	10/16/2014 14:16:16

Accept power: dBm