

R&S® TSMS-OMAGM

Magnetic Mount Adapter

Manual



1179784002

Version 02

ROHDE & SCHWARZ

Make ideas real



This document describes the following R&S®TSMS-OMAGM models:

- R&S®TSMS-OMAGM magnetic mount adapter to mount it on a car roof made of steel (4902.6100.02)

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Throughout this manual, R&S® is indicated as R&S.

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1 Safety information

The product documentation helps you use the product safely and efficiently. Follow the instructions provided here and in the following sections.

Intended use

The R&S TSMS-OMAGM is a magnetic mount adapter. Use the adapter to mount an antenna such as the R&S TSMS-OMN70 on a car roof made of steel for drive tests. Observe and follow the operating conditions and performance limits listed in the specifications.

Target audience

This document provides information for persons who install, operate and maintain the R&S TSMS-OMAGM.

Where do I find safety information?

Safety information is part of the product documentation. It warns you of potential dangers and gives instructions on how to prevent personal injury or damage caused by dangerous situations. Safety information is provided as follows:

- In [Section 1.1, "Safety instructions"](#), on page 5. The same information is provided in many languages in printed format. The printed "Rohde & Schwarz Magnetic Vehicle Adapters Safety Instructions (Multilingual)" (document number 1171.2584.99) are delivered with the product.
- Throughout the documentation, safety instructions are provided when you need to take care during setup or operation.

1.1 Safety instructions

Products from the Rohde & Schwarz group of companies are manufactured according to the highest technical standards. To install and use the products safely, follow the instructions provided here and in the product documentation. Keep the product documentation nearby and offer it to other users.

Install and use the product only for its intended use and within its performance limits. Intended use and limits are described in the product documentation such

Safety instructions

as the manuals, drawings and the printed Safety Instructions. If you are unsure about the appropriate use, contact Rohde & Schwarz customer service.

The product must be installed, maintained and operated only by specialist technicians or specially trained personnel. These users also need sound knowledge of at least one of the languages in which the product documentation is available.

Reconfigure or adjust the product only as described in the product documentation or the drawings. Any other modifications can affect safety and are not permitted.

If any part of the product is damaged or broken, stop using the product. Only service personnel authorized by Rohde & Schwarz are allowed to repair the product. Contact Rohde & Schwarz customer service at <https://www.rohde-schwarz.com/support>.

Lifting and carrying the product

The maximum weight of the product is provided in the supplied drawings. You can lift or carry the product by yourself, if you can manage the weight on your own. Alternatively, you can use lifting or transporting equipment. Follow the instructions provided by the equipment manufacturer.

Choosing the operating site

Only install the product on a vehicle roof that meets the following requirements:

- Rigid and made of steel
- Level and straight
- Not covered with film, fabric, cardboard or other interlayers
- Free from water, dirt, snow, ice, leaves or other soiling

A sufficient magnetic force is not given with any other kind of roof. Never mount the product to roofs made of aluminum, plastic, glass or fabric. Never mount the product to a roof that is damaged, repaired, repainted, tin plated, of too thin material or otherwise impaired. If any part of the roof exhibits any of these characteristics, always mount the product at a sufficient distance from the area concerned.

Never exceed the permitted roof load of your vehicle. Refer to its registration certificate, operating instructions or technical specification.

For information on environmental conditions such as ambient temperature and humidity, refer to the specifications document of the antenna.

Lightning protection for persons

If the product is temporarily mounted on a magnetic vehicle adapter, place the product, cables and adapter inside the vehicle. Lightning strikes can enter the vehicle if cables are routed from the outside into the vehicle.

Installing the product

To prevent objects falling off the vehicle roof:

- Fasten the safety rope correctly.
- Do not jam cables or safety ropes by closing the vehicle window.
- Make sure not to leave objects, e.g. tools or screws, on the vehicle roof.

Driving with a roof-mounted product

Before driving, check the product and the object mounted to it, e.g. an antenna:

- Remove the product or the antenna or both immediately if they are damaged, loose or bent.
- Remove ice and snow from the product.
- Remove the product when not in use.

Driving safely with the product mounted on the roof:

- Remember the increased vehicle height when driving through passages with low vertical clearance.
- Remember that items fixed outside of the vehicle change its driving characteristics.

Cleaning the product

Clean the product and the vehicle roof using water and a mild detergent.

Do not use cleaning agents such as solvents, acids, bases or other similar substances as they are harmful to health.

Regular safety inspections

Check the product and the vehicle roof regularly. Replace the product immediately if damaged, loose or bent. Replace the safety rope if damaged.

Meaning of safety labels

Safety labels on the product warn against potential hazards.



Potential hazard

Read the product documentation to avoid personal injury or product damage.

1.2 Warning messages in the documentation

A warning message points out a risk or danger that you need to be aware of. The signal word indicates the severity of the safety hazard and how likely it will occur if you do not follow the safety precautions.

WARNING

Potentially hazardous situation. Could result in death or serious injury if not avoided.

1.3 Where to find key documents on Rohde & Schwarz

Certificates issued to Rohde & Schwarz that are relevant for your country are provided at www.rohde-schwarz.com/key-documents, e.g. concerning:

- Quality management
- Environmental management
- Information security management
- Accreditations

2 Documentation overview

This section provides an overview of the R&S TSMS-OMAGM user documentation. Unless specified otherwise, you find the documents at:

www.rohde-schwarz.com/manual/tsmx

2.1 Manual

Introduces the R&S TSMS-OMAGM, includes general information, e.g. safety instructions and describes how to connect the product for drive tests. A printed version is delivered with the instrument.

2.2 Printed safety instructions

Provides safety information in many languages. The printed document is delivered with the product.

2.3 Related manuals

For information on all other topics, refer to the following manuals:

- R&S TSMS-OMN70 OMNI antenna installation instructions
- R&S TSMS53DC ultracompact downconverter manual.

2.4 Brochures

The brochure provides an overview of the product and deals with its specific characteristics and technical specifications. It also lists the optional accessories and their order numbers.

See www.rohde-schwarz.com/brochure-datasheet/tsmx

3 Checking out the magnetic mount adapter

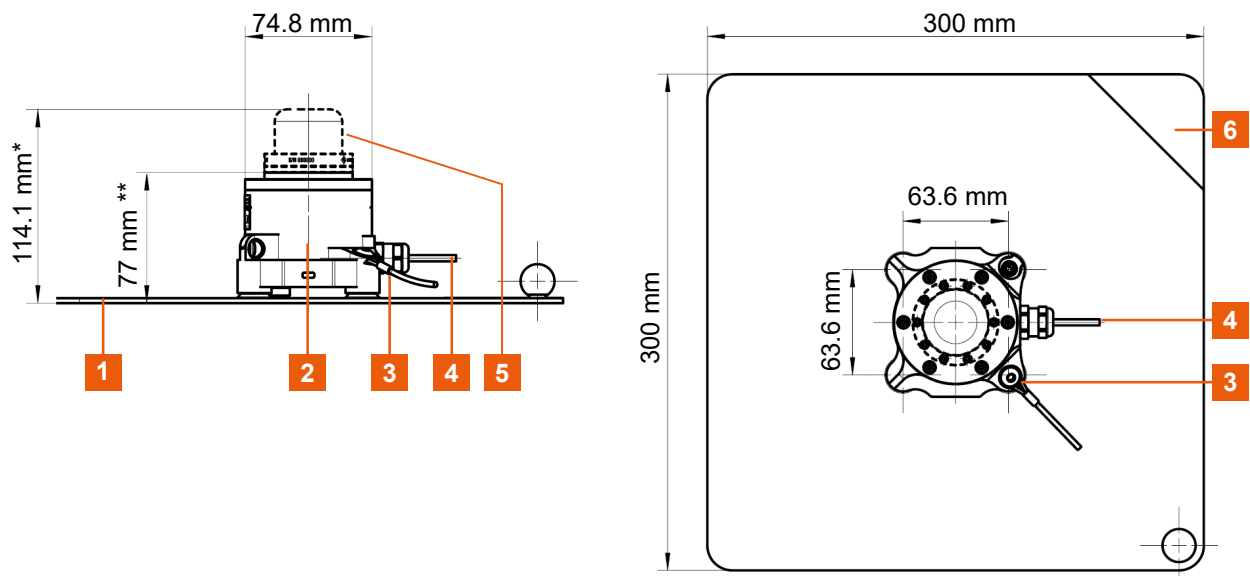
1. Unpack the R&S TSMS-OMAGM carefully.
2. Retain the original packing material. Use it when transporting or shipping the R&S TSMS-OMAGM later.
3. Using the delivery notes, check the equipment for completeness.
4. Check the equipment for damage.

If the delivery is incomplete or equipment is damaged, contact Rohde & Schwarz.

Table 3-1: Parts list

Designation	Order number
R&S TSMS-OMAGM magnetic mount adapter, incl.: • Magnetic plate with stainless steel protective plate (320 mmx320 mm) • Mounted safety rope • 4 x screw M6x8 Weight: 1.8 kg	4902.6100.02
R&S TSMS-OMNx getting information	1179.7304.02
Information sheet	4090.8830.00
O-ring 37x1.5 red	4902.6197.00
4 x combi screw 6900/ISR M2.5x8	0041.1653.00

Overview of the R&S TSMS-OMAGM



- 1 = Magnetic plate
- 2 = R&S TSMS-OMAGM
- 3 = Safety rope, one end mounted at the R&S TSMS-OMAGM
- 4 = RF cable R&S TSME-ZQC with cable fitting M16x1.5 1x3.7
- 5 = R&S TSMS-OMN70 (white variant, order number 4902.6000.02)
- 6 = Safety label, see ["Meaning of safety labels"](#) on page 7.
- * = Hight with R&S TSMS-OMN70
- ** = Hight of R&S TSMS-OMAGM

4 Installation instructions

4.1 Mounting an antenna to the magnetic adapter

When delivered, the magnetic mount adapter is already assembled.

Required tools

- R&S ZN-ZTW torque wrench, order number 1328.8534.35
Alternatively, a torque wrench from another manufacturer that fits a coax system 1.85 with 0.9 Nm.
- Torque screw driver with inserts TX10 (M3 bolts) and TX8 (M2.5 bolts) and torque of 0.66 Nm and 1.03 Nm.
- Optional:
 - Screwdriver TX10 (M3 bolts)
 - Screwdriver TX8 (M2.5 bolts)
 - Flat wrench size 8 mm

How to mount the assembly

1. Remove the 6 screws 6900/ISR M3x8.

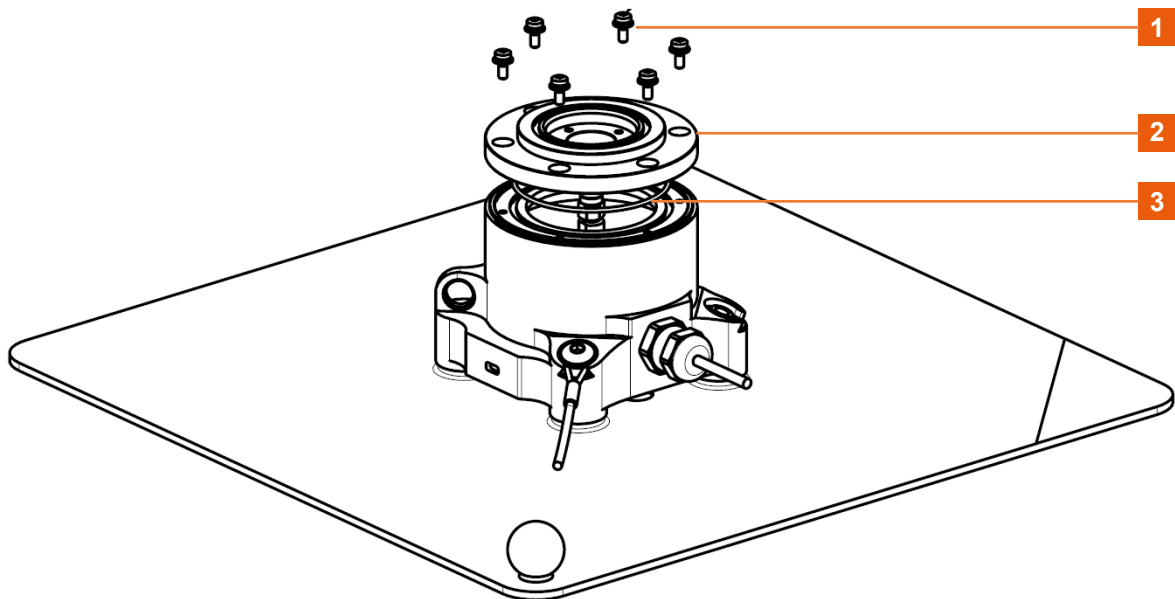
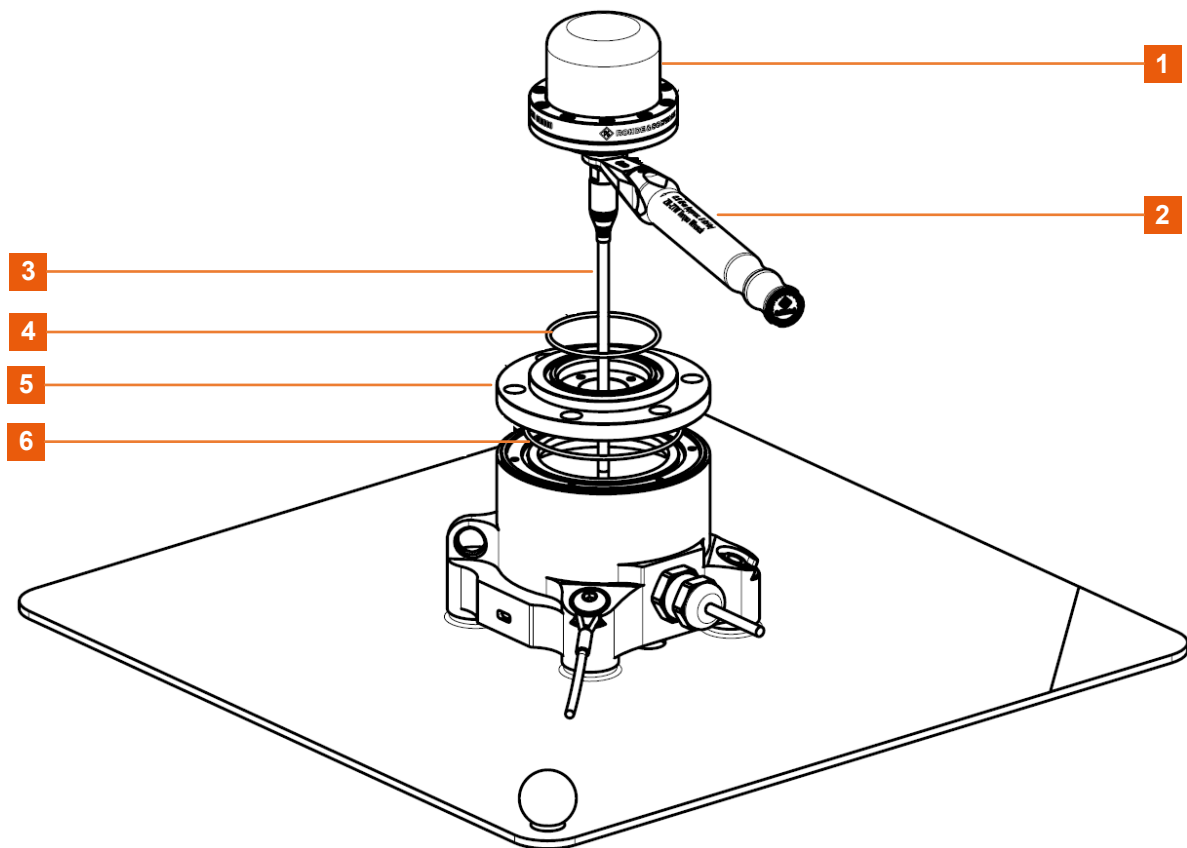


Figure 4-1: Disassembling adapter plate

Mounting an antenna to the magnetic adapter

- 1 = 6 screws 6900/ISR M3x8
2 = Adapter plate for the antenna R&S TSMS-OMN70
3 = O-ring 53x1.5

2. Lift the antenna adapter plate.
3. Lift the red O-ring 53x1.5.
4. Pull the following parts in the given order over the R&S TSME-ZQCRF cable:
 - The dismantled red O-ring 53x1.5.
 - The dismantled adapter plate
 - The red O-ring 37x1.5 incl. in the delivery



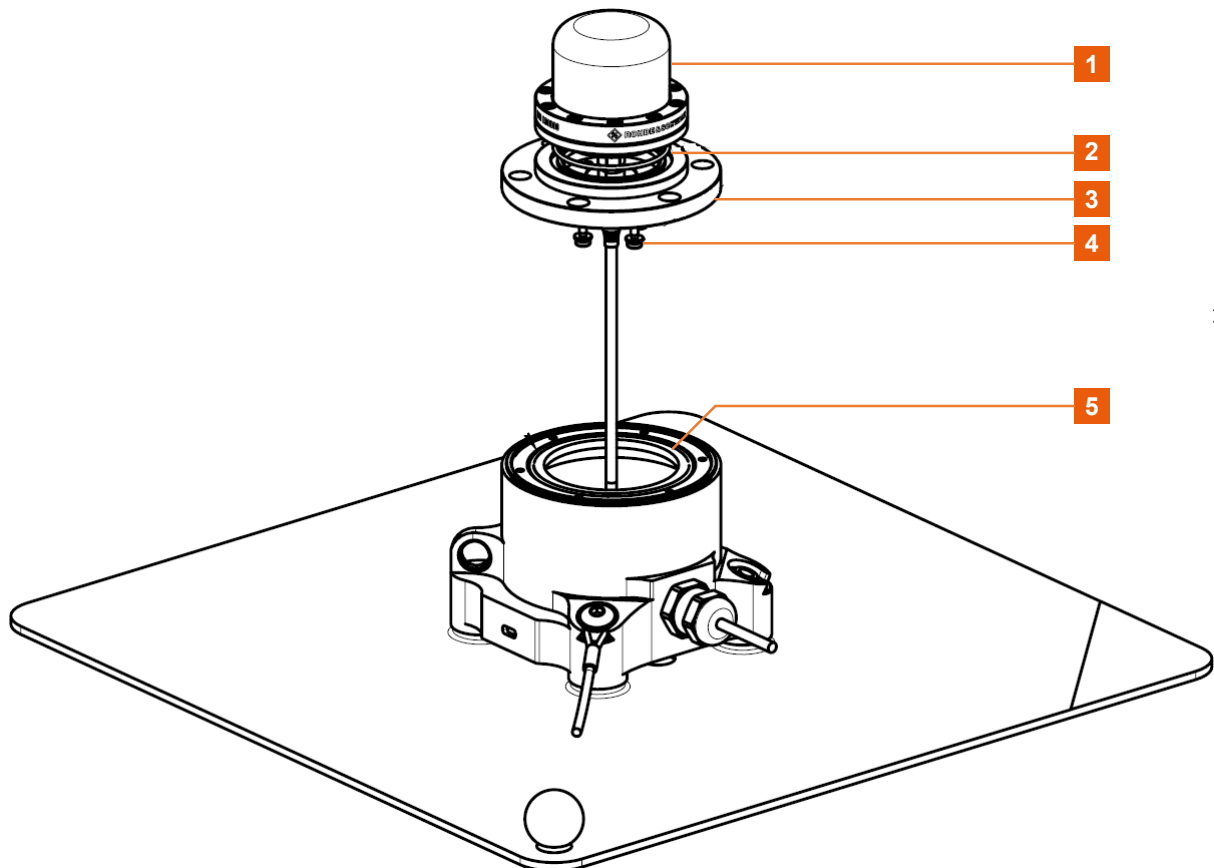
- 1 = Antenna, R&S TSMS-OMN70 (order number 4902.6000.02)
2 = R&S ZN-ZTW torque wrench
3 = R&S TSME-ZQC RF cable, 200 mm long
4 = Red O-ring 37x1.5 incl. in the delivery
5 = Antenna adapter plate
6 = Dismounted red O-ring 53x1.5

5. Remove the cable caps from the RF cable R&S TSME-ZQC.
6. Connect the RF cable R&S TSME-ZQC to the antenna.

Mounting an antenna to the magnetic adapter

Use R&S ZN-ZTW torque wrench with torque of 0.9 Nm. Or use an alternative torque wrench, see ["Required tools"](#) on page 12.

7. Put the O-ring 53x1.5 into the groove of the antenna support.
8. Put the O-ring 37x1.5 into the groove of the adapter plate.

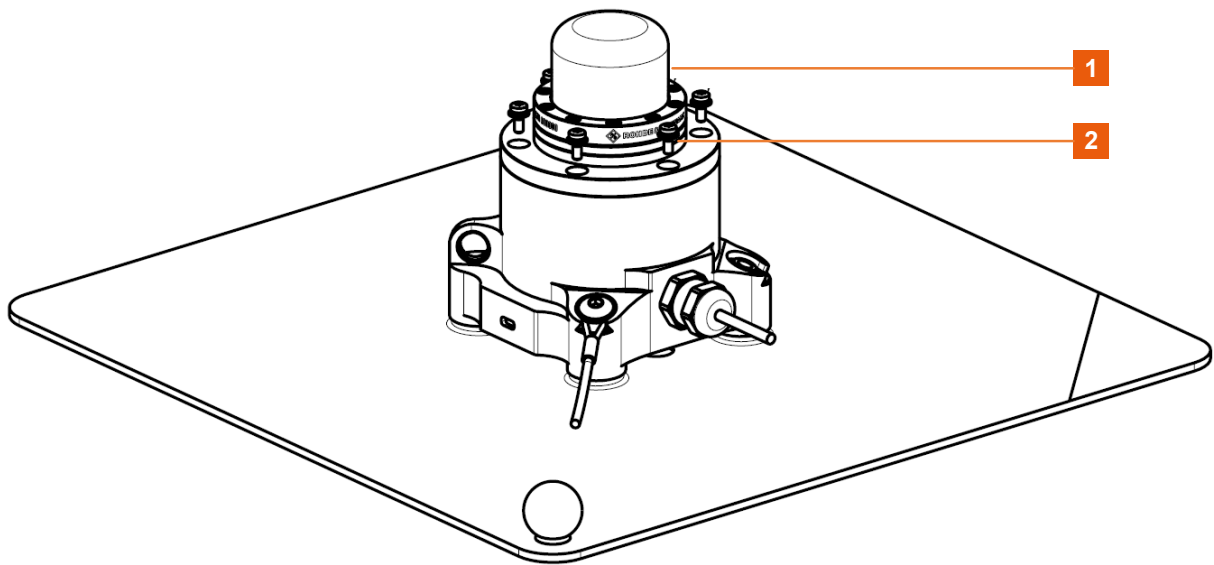


- 1 = Antenna, R&S TSMS-OMN70 (order number 4902.6000.02)
- 2 = Red O-ring 37x1.5 incl. in the delivery
- 3 = Antenna adapter plate
- 4 = 4 combi screws 6900/ISR M2.5 x 8
- 5 = O-ring 53x1.5

9. Fix the antenna with the 4 combi screws 6900/ISR M2.5 x 8 (incl. in the delivery) to the adapter plate.
Use the torque screw driver with insert TX8 (M2.5 bolts) and torque of 0.66 Nm.
10. Stow the RF cable in the interior of the antenna support in a spiral shape.
11. Mount the antenna and the adapter plate on the antenna support with the 6 dismantled 6900/ISR M3x8 screws.

Installing on a vehicle roof

Use the torque screw driver with insert TX10 (M3 bolts) and torque of 1.03 Nm.



- 1 = Antenna, R&S TSMS-OMN70
4 = 6 screws 6900/ISR M3x8

4.2 Installing on a vehicle roof

We assume you have mounted the antenna R&S TSMS-OMN70 (order number 4902.6000.02) to the R&S TSMS-OMAGM as described in [Section 4.1, "Mounting an antenna to the magnetic adapter"](#), on page 12. In the following, the R&S TSMS-OMAGM with the antenna mounted on it is referred to as the assembly.

To install on a vehicle roof

1. Select a vehicle with a roof that meets the requirements listed in ["Choosing the operating site"](#) on page 6.
2. Clean the surface of the roof and immediately before mounting the assembly.
3. Remove the stainless steel protective plate from the magnetic plate.
Keep the stainless steel protective plate for transport and storage.
4. Place the assembly on the middle of the vehicle roof.
5. If you need to adjust the position, lift the assembly and place it anew.

Removing the mount adapter

Do not shift the assembly when in contact with the roof, neither for tiny distances.

6. **WARNING!** If the magnetic mount adapter comes off during driving, people can be seriously hurt. Secure the magnetic mount adapter with the safety rope. One end of the safety rope is already fixed at the magnetic plate upon delivery.

Fasten the other end to the vehicle in one of the following ways:

- Put the safety rope through the vehicle window. Fasten the safety rope at the handle.

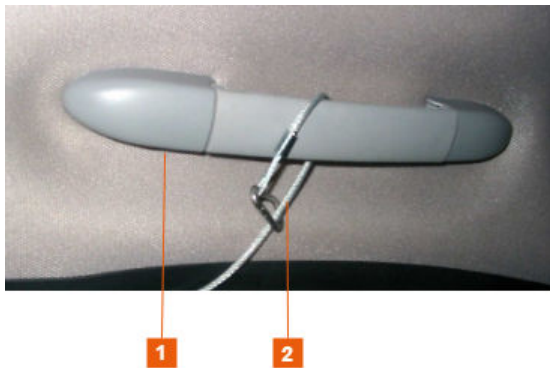


Figure 4-2: Fastening of safety rope to door grab handle

1 = Grab handle

2 = Safety rope

- Put the safety rope through the vehicle window. Fasten the safety rope at the brace of the headrest.
 - If the vehicle has a roof railing, fasten the safety rope at the roof railing.
7. Put the RF cable through the vehicle window. Connect it to the downconverter or to the scanner.
Refer to the documentation of the scanner or of the downconverter for details.
8. **WARNING!** Falling objects can cause injuries.
Make sure not to leave objects, e.g. tools or screws, on the vehicle roof.

4.3 Removing the mount adapter

1. Disconnect the antenna cable.
2. Loosen the safety rope at the handle within the vehicle.

Removing the mount adapter

3. Lift and remove the assembly from the vehicle roof.
4. Put the protective plate on the magnetic plate.

5 Operating the mount adapter

For safety information, see ["Driving with a roof-mounted product"](#) on page 7.

Always check the safety rope for visible defects and assure that it is firmly connected to the magnetic adapter and to the vehicle, see ["To install on a vehicle roof"](#) on page 15.

The product has an ingress protection code IP65 and is thus dustproof and with protection against water jets. Observe and obey the max. allowed speed defined in the specifications document while driving with a magnetic adapter and antenna mounted on the vehicle roof.

6 Maintenance, storage and disposal

Maintenance

The R&S TSMS-OMAGM has been designed for long periods of operation with minimal maintenance.

Carry out maintenance and inspection at the following intervals or in the following cases:

- Before each drive test with mounted assembly on the vehicle roof: perform the inspections listed in ["Regular safety inspections"](#) on page 7 and in [Section 5, "Operating the mount adapter"](#), on page 18.
- After mounting and dismounting the M6x8 screws with polyamide screw lockings five times: replace all M6x8 screws on the magnetic plate.
- Before installation and after removal: check the O-rings for damage.
- Screws without or with worn out polyamide screw locking must be locked with conventional protective paint or liquefied plastic.
- Quarterly: check the tightness and torque of the M2.5 and M3 combination screws.
- Yearly and whenever the system has been exposed to heavy stress: Dismount the antenna, check the RF cable, the O-rings and all parts for defects, check the product for humidity. Mount the product and the antenna as described in [Section 4, "Installation instructions"](#), on page 12.

If the R&S TSMS-OMAGM is heavily soiled, clean it using water and a mild detergent. You do not need to dismount the assembly. See ["Cleaning the product"](#) on page 7.

Storage

Use the original packing material, see [Section 3, "Checking out the magnetic mount adapter"](#), on page 10.

Transport and store the product so that the parts do not damage each other. Prevent that parts are damaged or scratched.

Disposal

Rohde & Schwarz is committed to making careful, ecologically sound use of natural resources and minimizing the environmental footprint of our products. Help us by disposing of waste in a way that causes minimum environmental impact.

Dispose of the metal components and the RF cable separately, according to applicable waste disposal regulations.

7 Contacting customer support

Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz product, contact our customer support center. A team of highly qualified engineers provides support and works with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz products.

Contact information

Contact our customer support center at www.rohde-schwarz.com/support, or follow this QR code:



Figure 7-1: QR code to the Rohde & Schwarz support page