

R&S® TSMX-PPS GPS Module

GPS receiver module with PPS output



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R&S®TSMX-PPS GPS Module At a glance

The R&S®TSMX-PPS is a GPS receiver module with PPS output for high-precision measurements, e.g. in combination with the R&S®TSMx drive test scanners.

The accuracy of scanner measurements is highly dependent on synchronization with the wanted signals. Synchronization can be achieved by means of synchronization signals that are found inside mobile radios but that nevertheless exhibit a certain lack of accuracy. This is why the R&S®TSMX-PPS is a better alternative. The R&S®TSMX-PPS GPS receiver module evaluates GPS signals and returns position data and a highly precise time reference at the PPS connector.

The module is small, handy and versatile. The integrated u-blox chipset with SuperSense ANTARIS4 architecture offers maximum sensitivity so that position measurements can be performed even inside buildings. The minimum power consumption means that no external power supply is required. An integrated backup unit permits rapid positioning after a cold start.

The R&S®TSMX-PPS must be used if GSM/WCDMA base station localization is performed with an R&S®TSMx and the R&S®ROMES3LOC option from R&S®ROMES.

Key facts

- SuperSense GPS receiver
- Pulses per second (PPS) output
- 16 channels
- Activation interval of 4 Hz
- Compact, light, and versatile



R&S®TSMX-PPS GPS Module

Benefits and key features

High sensitivity

- May also be used in buildings
- High accuracy

PPS output

- Precise synchronization of an R&S®TSMX drive test scanner

Fast update rate

- Local resolution higher than with conventional GPS receivers

Supported instruments

R&S®TSMX-PPS with PPS pulses can be used in combination with one of the following instruments:

- R&S®TSMQ
- R&S®TSML-C
- R&S®TSML-G
- R&S®TSML-W
- R&S®TSMU with R&S®TSMU-K11/K12/K13

System configuration

- Independent (configuration 1)
R&S®TSMX-PPS and supplied USB cable for connection to a PC for positioning
- Combination of R&S®TSMX-PPS and R&S®TSMX (configuration 2)
Connection same as in configuration 1 except with additional PPS pulse via RG-58 connection to R&S®TSMX for high-precision synchronization

Together with the R&S®ROMES3LOC option from R&S®ROMES and configuration 2, GSM and WCDMA base stations can be localized with high precision.

One active GPS antenna, one USB cable, and one RF cable for PPS connector are part of the equipment supplied.

Specifications	
GPS receiver	
GPS chipset	u-blox ANTARIS 4
Number of channels	16
Sensitivity 1)	typ. -148 dBm
Measurement speed	4 Hz
Accuracy 2)	typ. 2.5 m CEP
Startup time 3)	
Cold start	typ. <41 s
Hot start	typ. <3.5 s
Physical characteristics	
Operating temperature range	0°C to +55°C
Power consumption	<0.7 W
Connectors	
GPS antenna	SMA
PPS output	SMA
USB (signal and voltage supply)	type B
Serial (for connection directly to R&S®TSMx)	4-contact mini-DIN

- ¹⁾ Sensitivity with supplied antenna, for "acquisition & reacquisition". Cold start requires higher level, tracking lower level.
- ²⁾ Circular error probability (CEP): radius of a horizontal circle at the true antenna site that includes 50% of all position calculations.
- ³⁾ Measured with good satellite view and -125 dBm signal level.

Ordering information		
Designation	Type	Order No.
GPS Module	R&S®TSMX-PPS	1503.4850.02
Radio network analyzer		
R&S®TSMQ Quad Tech Drive Test Receiver	R&S®TSMQ	1153.6000.50
CDMA Radio Network Analyzer	R&S®TSML-C	1153.6000.12
GSM Radio Network Analyzer	R&S®TSML-G	1153.6000.13
WCDMA Radio Network Analyzer	R&S®TSML-W	1153.6000.11
Radio Network Analyzer	R&S®TSMU	1153.6000.02
WCDMA PN Scanner Option for R&S®TSMU	R&S®TSMU-K11	1153.4550.02
CDMA PN Scanner Option for R&S®TSMU	R&S®TSMU-K12	1153.4608.02
GSM Network Scanner Option for R&S®TSMU	R&S®TSMU-K13	1153.4572.02
Software		
Drive Test Software Platform	R&S®ROMES3NG	1143.7991.40
Driver for BTS Positioning	R&S®ROMES3LOC	1143.8098.40
Driver for WCDMA Scanner	R&S®ROMES3T11	1156.2858.42
Driver for CDMA Scanner	R&S®ROMES3T12	1156.2858.44
Driver for GSM Scanner	R&S®ROMES3T13	1156.2858.46
Driver for R&S®TSMQ Scanner	R&S®ROMES3T1Q	1508.1588.02

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www.rohde-schwarz.com
(search term: TSMX)

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