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R&S®AMU200A Baseband Signal Generator and Fading Simulator

Configuration Guide

Configuration Guide

This document guides you step-by-step through the configuration procedure for the Baseband Signal Generator and Fading Simulator R&S®AMU200A.
Each step indicates whether an option is mandatory or optional and also provides the following information:

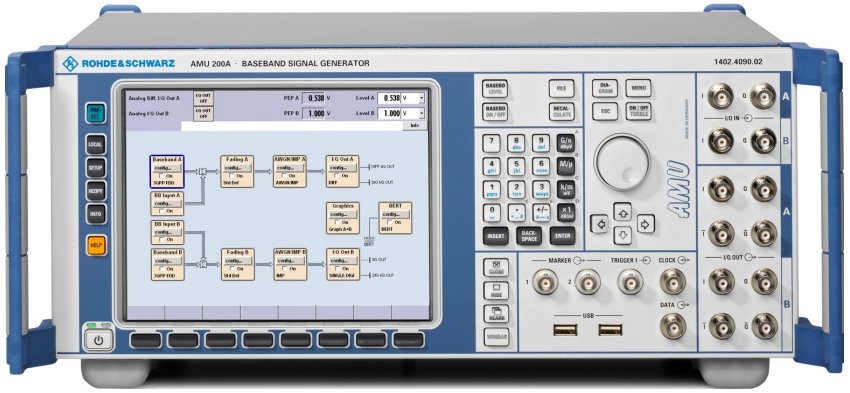
Option	Name of the option
Description	Description of the option
Requires	Options required in order to install the selected option
Not compatible with	Options incompatible with the selected option
HW or SW	Identifies the option as a hardware or software option
Remarks	Special remarks such as “factory-installed”

Mandatory fields that list various selectable options apply only if the step that includes them is chosen.

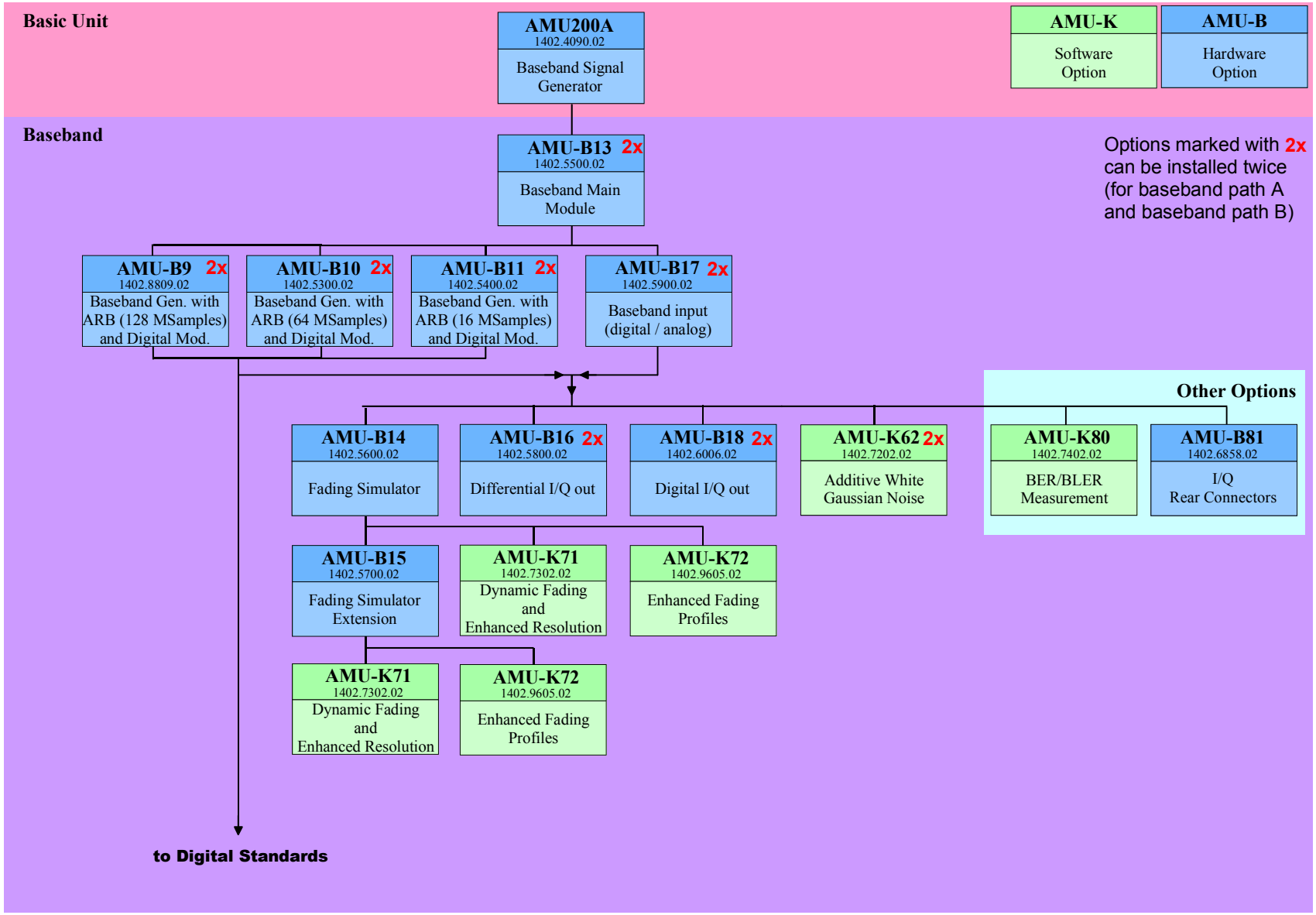
The R&S®AMU200A can be equipped with up to two baseband paths (A and B), which effectively means two indepent baseband signal generators and fading simulators in one cabinet of only four height units.
For easier configuration of the instrument to be used, this guide has been divided into two sections:

Single-path instrument – starting on page 6
Two-path instrument – starting on page 9

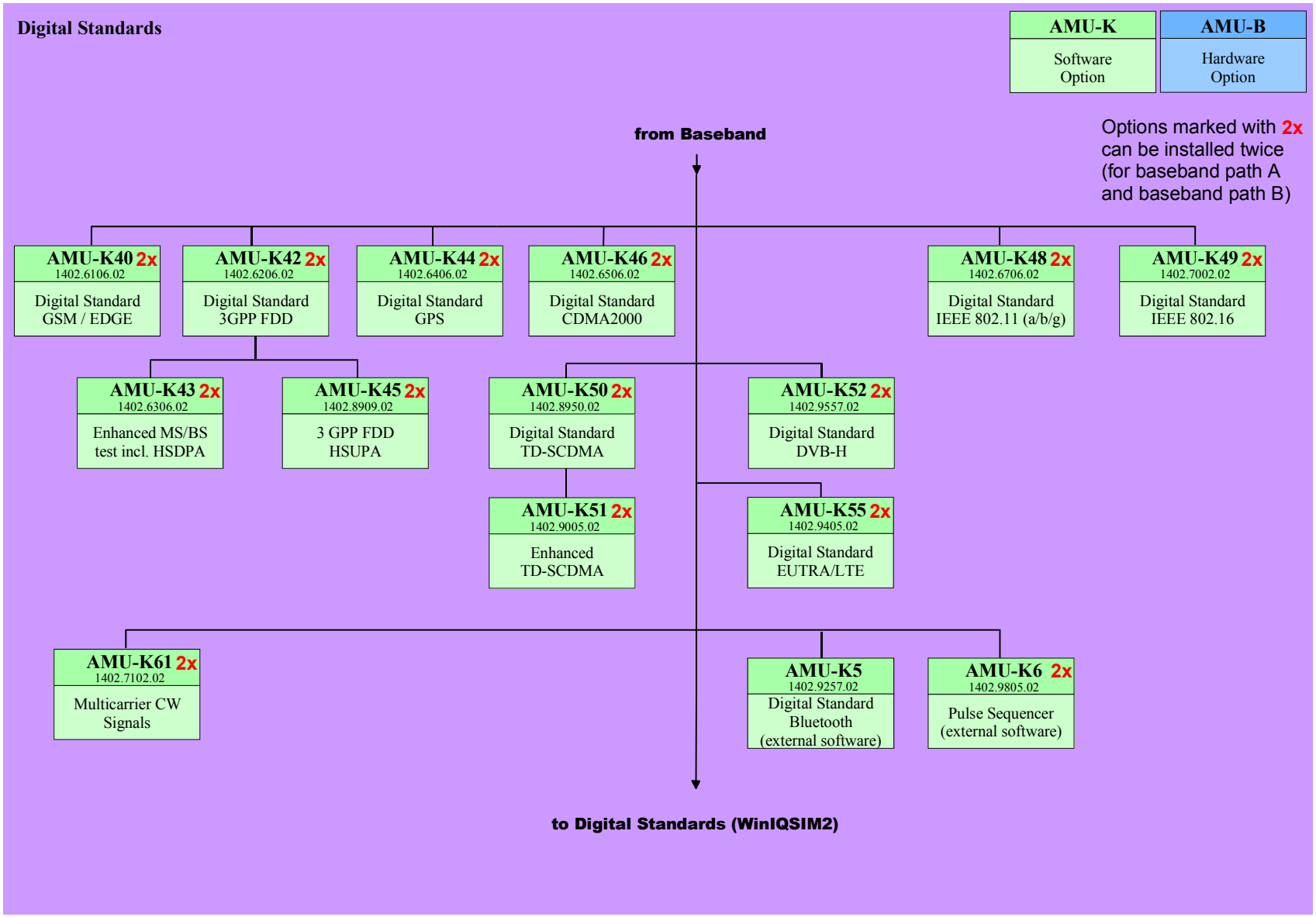
An overview of available options is provided on page 3 to 6.
Configuration examples are given on page 15.



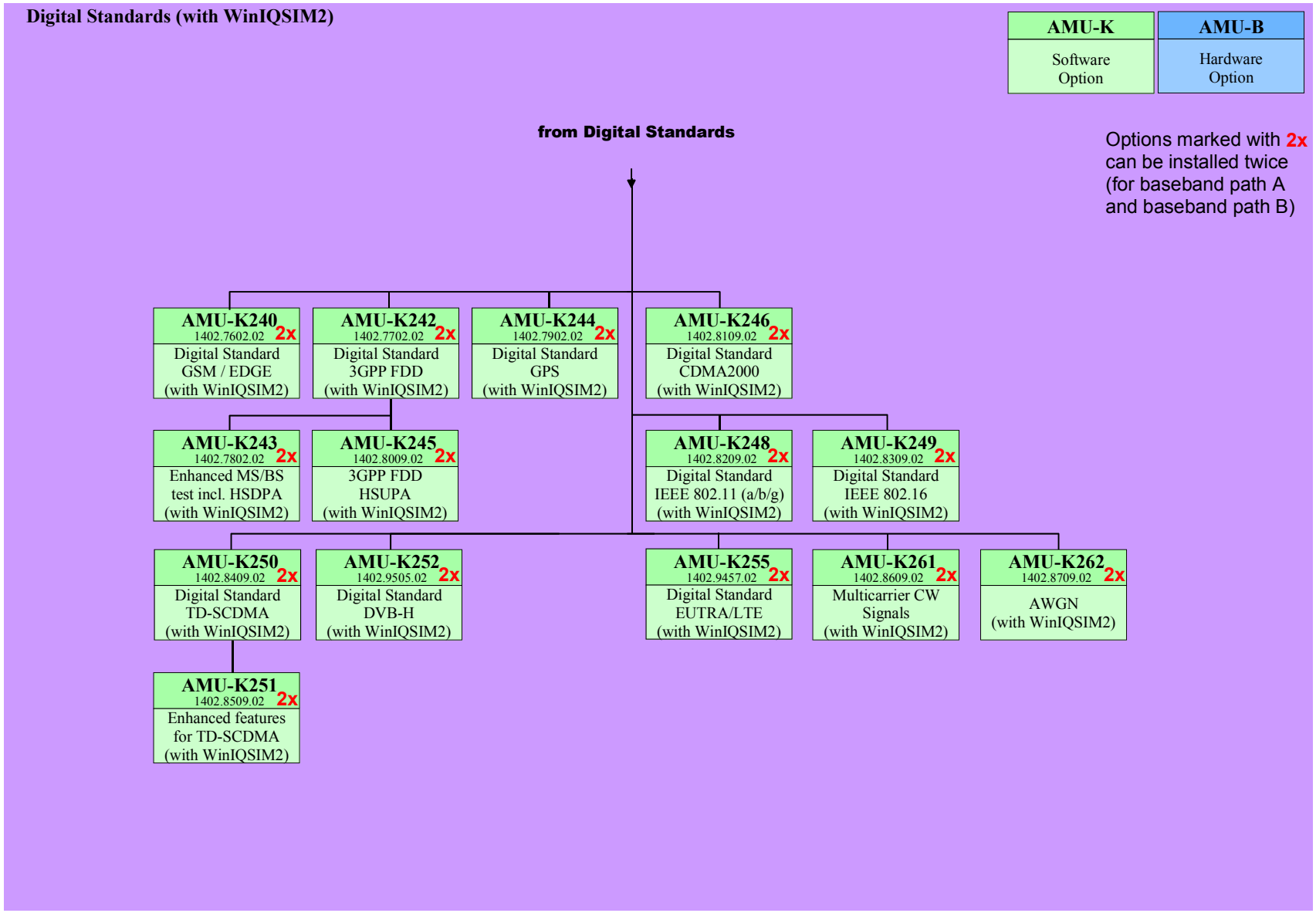
Option Overview – Baseband



Option Overview – Digital Standards



Option Overview – R&S®WinIQSIM2™



Single-path instrument

Applies if the instrument is equipped with one baseband path.

Step ① Configure baseband path — MANDATORY

Choose baseband source — MANDATORY

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-B13	Baseband Main Module	–	–	HW	Requires AMU-B9, AMU-B10, AMU-B11 or AMU-B17 in order to be used
AMU-B9	Baseband Generator with ARB (128 Msamples) and Digital Modulation	AMU-B13	AMU-B10, AMU-B11	HW	Either a baseband generator AMU-B9, AMU-B10, AMU-B11 or the baseband input option AMU-B17 is mandatory for the AMU200A There can be one baseband input AMU-B17 and one of the baseband generators AMU-B9, AMU-B10, AMU-B11 at the same time.
AMU-B10	Baseband Generator with ARB (64 Msamples) and Digital Modulation	AMU-B13	AMU-B9, AMU-B11	HW	
AMU-B11	Baseband Generator with ARB (16 MSamples) and Digital Modulation	AMU-B13	AMU-B9, AMU-B10	HW	
AMU-B17	Baseband input (analog/digital)	AMU-B13	–	HW	

Choose baseband output — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-B16	Differential I/Q out	AMU-B9, -B10, -B11 or -B17	–	HW	
AMU-B18	Digital I/Q out	AMU-B9, -B10, -B11 or -B17	–	HW	

Choose digital modulation systems — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K40	Dig. Std. GSM/EDGE	AMU-B9, -B10 or -B11	–	SW	
AMU-K42	Dig. Std. 3GPP FDD	AMU-B9, -B10 or -B11	–	SW	
AMU-K43	3GPP enhanced MS/BS tests incl. HSDPA	AMU-K42	–	SW	

AMU-K44	Dig. Std. GPS	AMU-B9, -B10 or -B11	–	SW	
AMU-K45	3GPP FDD HSUPA	AMU-K42	–	SW	
AMU-K46	cdma2000 incl. 1xEV-DV	AMU-B9, -B10 or -B11	–	SW	
AMU-K48	Dig. Std. IEEE 802.11 (a/b/g)	AMU-B9, -B10 or -B11	–	SW	
AMU-K49	Dig. Std. IEEE 802.16	AMU-B9, -B10 or -B11	–	SW	
AMU-K50	Dig. Std. TD-SCDMA	AMU-B9, -B10 or -B11	–	SW	
AMU-K51	TD-SCDMA enhanced BS/MS tests incl. HSDPA	AMU-K50	–	SW	
AMU-K52	Dig. Std. DVB-H	AMU-B9, -B10 or -B11	–	SW	
AMU-K55	Dig. Std. EUTRA/LTE	AMU-B9, -B10 or -B11	–	SW	
AMU-K61	Multicarrier CW Signal Generation	AMU-B9, -B10 or -B11	–	SW	

Choose digital modulation systems using R&S®WinIQSIM2™[1] OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K240	Dig. Std. GSM/EDGE	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K242	Dig. Std. 3GPP FDD	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K243	3GPP enhanced MS/BS tests incl. HSDPA	AMU-K242	–	SW	With WinIQSIM2™
AMU-K244	Dig. Std. GPS	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K245	3GPP FDD HSUPA	AMU-K242	–	SW	With WinIQSIM2™
AMU-K246	cdma2000 incl. 1xEV-DV	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K248	Dig. Std. IEEE 802.11 (a/b/g)	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K249	Dig. Std. IEEE 802.16	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K250	Dig. Std. TD-SCDMA	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K251	TD-SCDMA enhanced BS/MS tests incl. HSDPA	AMU-K250	–	SW	With WinIQSIM2™
AMU-K252	Dig. Std. DVB-H	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K255	Dig. Std. EUTRA/LTE	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K261	Multicarrier CW Signal Generation	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K262	Additive White Gaussian Noise (AWGN)	AMU-B9, -B10 or -B11	–	SW	Off-line AWGN simulation in WinIQSIM2™

[1] R&S®WinIQSIM2™ requires an external PC.

Choose digital modulation systems using external PC Software — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K5	Dig. Std. Bluetooth™	AMU-B9, -B10 or -B11	–	SW	With external PC program SM-K5
AMU-K6	Pulse Sequencer	AMU-B9, -B10 or -B11	–	SW	With external PC program Pulse Sequencer

Choose noise — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K62	Additive White Gaussian Noise (AWGN)	AMU-B9, -B10 -B11 or -B17	–	SW	Internal real-time AWGN generation

Step ② Configure fading — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-B14	Fading Simulator	AMU-B9, -B10, -B11 or -B17	–	HW	
AMU-B15	Fading Simulator Extension	AMU-B14	–	HW	Extends AMU-B14 to 40 paths
AMU-K71	Dynamic Fading and enhanced resolution	AMU-B14	–	SW	
AMU-K72	Enhanced Fading Profiles	AMU-B14	–	SW	

Step ③ Choose other options — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K80	BER/BLER Measurement	AMU-B9, -B10, -B11 or -B17	–	SW	
AMU-B81	I/Q Rear Connectors	AMU-B9, -B10, -B11 or -B17	–	HW	Factory fitted

Two-path instrument

Applies if the instrument is equipped with two baseband main modules and two baseband sources.
I.e. a two-path unit always requires a second R&S®AMU-B13 and two of the baseband sources out of R&S®AMU-B9, -B10, -B11, -B17.

Step ① Configure baseband path A — MANDATORY

Choose baseband source — MANDATORY

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-B13	Baseband Main Module	–	–	HW	Requires AMU-B9, AMU-B10, AMU-B11 or AMU-B17 (in path A) to be used
AMU-B9	Baseband Generator with ARB (128 Msamples) and Digital Modulation	AMU-B13	AMU-B10, AMU-B11	HW	Either a baseband generator AMU-B9, AMU-B10, AMU-B11 or the baseband input option AMU-B17 is mandatory for path A of the AMU200A. There can be one baseband input AMU-B17 and one of the baseband generators AMU-B9, AMU-B10, AMU-B11 at the same time in path A.
AMU-B10	Baseband Generator with ARB (64 Msamples) and Digital Modulation	AMU-B13	AMU-B9, AMU-B11	HW	
AMU-B11	Baseband Generator with ARB (16 MSamples) and Digital Modulation	AMU-B13	AMU-B9, AMU-B10	HW	
AMU-B17	Baseband input (analog/digital)	AMU-B13	–	HW	

Choose baseband output — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-B16	Differential I/Q out	AMU-B9, -B10, -B11 or -B17	–	HW	
AMU-B18	Digital I/Q out	AMU-B9, -B10, -B11 or -B17	–	HW	

Choose digital modulation systems — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K40	Dig. Std. GSM/EDGE	AMU-B9, -B10 or -B11	–	SW	
AMU-K42	Dig. Std. 3GPP FDD	AMU-B9, -B10 or -B11	–	SW	
AMU-K43	3GPP enhanced MS/BS tests incl. HSDPA	AMU-K42	–	SW	
AMU-K44	Dig. Std. GPS	AMU-B9, -B10 or -B11	–	SW	

AMU-K45	3GPP FDD HSUPA	AMU-K42	–	SW	
AMU-K46	cdma2000 incl. 1xEV-DV	AMU-B9, -B10 or -B11	–	SW	
AMU-K48	Dig. Std. IEEE 802.11 (a/b/g)	AMU-B9, -B10 or -B11	–	SW	
AMU-K49	Dig. Std. IEEE 802.16	AMU-B9, -B10 or -B11	–	SW	
AMU-K50	Dig. Std. TD-SCDMA	AMU-B9, -B10 or -B11	–	SW	
AMU-K51	TD-SCDMA enhanced BS/MS tests incl. HSDPA	AMU-K50	–	SW	
AMU-K52	Dig. Std. DVB-H	AMU-B9, -B10 or -B11	–	SW	
AMU-K55	Dig. Std. EUTRA/LTE	AMU-B9, -B10 or -B11	–	SW	
AMU-K61	Multicarrier CW Signal Generation	AMU-B9, -B10 or -B11	–	SW	

Choose digital modulation systems using R&S®WinIQSIM2™[2] OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K240	Dig. Std. GSM/EDGE	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K242	Dig. Std. 3GPP FDD	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K243	3GPP enhanced MS/BS tests incl. HSDPA	AMU-K242	–	SW	With WinIQSIM2™
AMU-K244	Dig. Std. GPS	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K245	3GPP FDD HSUPA	AMU-K242	–	SW	With WinIQSIM2™
AMU-K246	cdma2000 incl. 1xEV-DV	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K248	Dig. Std. IEEE 802.11 (a/b/g)	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K249	Dig. Std. IEEE 802.16	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K250	Dig. Std. TD-SCDMA	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K251	TD-SCDMA enhanced BS/MS tests incl. HSDPA	AMU-K250	–	SW	With WinIQSIM2™
AMU-K252	Dig. Std. DVB-H	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K255	Dig. Std. EUTRA/LTE	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K261	Multicarrier CW Signal Generation	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K262	Additive White Gaussian Noise (AWGN)	AMU-B9, -B10 or -B11	–	SW	Off-line AWGN simulation in WinIQSIM2™

[2] R&S®WinIQSIM2™ requires an external PC.

Choose digital modulation systems using external PC Software — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K5	Dig. Std. Bluetooth	AMU-B9, -B10 or -B11	–	SW	With external PC program SM-K5
AMU-K6	Pulse Sequencer	AMU-B9, -B10 or -B11	–	SW	With external PC program Pulse Sequencer

Choose noise — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K62	Additive White Gaussian Noise (AWGN)	AMU-B13 and AMU-B9, -B10, -B11 or -B17	–	SW	Internal real-time AWGN generation

Step ② Configure baseband path B — OPTIONAL

Choose baseband source — MANDATORY

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-B13	Baseband Main Module	AMU-B13 (in path A) and AMU-B9, -B10, -B11 or -B17 (in path A)	–	HW	Required to have I/Q outputs on baseband path B.
AMU-B9	Baseband Generator with ARB (128 Msamples) and Digital Modulation	AMU-B13 (in path A), AMU-B9 (in path A) and AMU-B13 (in path B)	AMU-B10, AMU-B11 (in path B)	HW	There can be one baseband generator AMU-B9, AMU-B10, AMU-B11 and the baseband input AMU-B17 at the same time per baseband path. In total there can be two baseband generators and two baseband inputs on the AMU200A. If different baseband generators are installed in baseband paths A and B, then the baseband generator with larger ARB size is always installed in path A. Examples: AMU-B9 and -B10 → B9 in path A, B10 in path B AMU-B10 and -B11 → B10 in path A, B11 in path B AMU-B9 and -B11 → B9 in path A, B11 in path B
AMU-B10	Baseband Generator with ARB (64 Msamples) and Digital Modulation	AMU-B13 (in path A), AMU-B9 or -B10 (in path A) and AMU-B13 (in path B)	AMU-B9, AMU-B11 (in path B)	HW	
AMU-B11	Baseband Generator with ARB (16 MSamples) and Digital Modulation	AMU-B13 (in path A), AMU-B9, -B10 or -B11 (in path A) and AMU-B13 (in path B)	AMU-B9, AMU-B10 (in path B)	HW	
AMU-B17	Baseband input (analog/digital)	AMU-B13 (in path A), AMU-B17 (in path A) and AMU-B13 (in path B)	–	HW	The second AMU-B17 is always routed to path B.

Choose baseband output — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-B16	Differential I/Q out	AMU-B13 (in path B)	–	HW	If there are two AMU-B13 but only one AMU-B16 installed, the differential I/Q output is installed in path A
AMU-B18	Digital I/Q out	AMU-B13 (in path B)	–	HW	If there are two AMU-B13 but only one AMU-B18 installed, the digtal I/Q output is installed in path A

Choose digital modulation systems — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K40	Dig. Std. GSM/EDGE	AMU-B9, -B10 or -B11	–	SW	
AMU-K42	Dig. Std. 3GPP FDD	AMU-B9, -B10 or -B11	–	SW	
AMU-K43	3GPP enhanced MS/BS tests incl. HSDPA	AMU-K42	–	SW	
AMU-K44	Dig. Std. GPS	AMU-B9, -B10 or -B11	–	SW	
AMU-K45	3GPP FDD HSUPA	AMU-K42	–	SW	
AMU-K46	cdma2000 incl. 1xEV-DV	AMU-B9, -B10 or -B11	–	SW	
AMU-K48	Dig. Std. IEEE 802.11 (a/b/g)	AMU-B9, -B10 or -B11	–	SW	
AMU-K49	Dig. Std. IEEE 802.16	AMU-B9, -B10 or -B11	–	SW	
AMU-K50	Dig. Std. TD-SCDMA	AMU-B9, -B10 or -B11	–	SW	
AMU-K51	TD-SCDMA enhanced BS/MS tests incl. HSDPA	AMU-K50	–	SW	
AMU-K52	Dig. Std. DVB-H	AMU-B9, -B10 or -B11	–	SW	
AMU-K55	Dig. Std. EUTRA/LTE	AMU-B9, -B10 or -B11	–	SW	
AMU-K61	Multicarrier CW Signal Generation	AMU-B9, -B10 or -B11	–	SW	

Choose digital modulation systems using R&S®WinIQSIM2™[3] — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K240	Dig. Std. GSM/EDGE	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K242	Dig. Std. 3GPP FDD	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K243	3GPP enhanced MS/BS tests incl. HSDPA	AMU-K242	–	SW	With WinIQSIM2™

[3] R&S®WinIQSIM2™ requires an external PC.

AMU-K244	Dig. Std. GPS	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K245	3GPP FDD HSUPA	AMU-K242	–	SW	With WinIQSIM2™
AMU-K246	cdma2000 incl. 1xEV-DV	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K248	Dig. Std. IEEE 802.11 (a/b/g)	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K249	Dig. Std. IEEE 802.16	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K250	Dig. Std. TD-SCDMA	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K251	TD-SCDMA enhanced BS/MS tests incl. HSDPA	AMU-K250	–	SW	With WinIQSIM2™
AMU-K252	Dig. Std. DVB-H	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K255	Dig. Std. EUTRA/LTE	AMU-B9, -B10 or -B11	–	SW	With WinIQSIM2™
AMU-K261	Multicarrier CW Signal Generation	AMU-B9, -B10 or –B11	–	SW	With WinIQSIM2™
AMU-K262	Additive White Gaussian Noise (AWGN)	AMU-B9, -B10 or -B11	–	SW	Off-line AWGN simulation in WinIQSIM2™

Choose digital modulation systems using external PC Software — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K5	Dig. Std. Bluetooth	AMU-B9, -B10 or -B11	–	SW	With external PC program SM-K5
AMU-K6	Pulse Sequencer	AMU-B9, -B10 or -B11	–	SW	With external PC program Pulse Sequencer

Choose noise — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K62	Additive White Gaussian Noise (AWGN)	second AMU-B13	–	SW	Internal real-time AWGN generation

Step ③ Configure fading — OPTIONAL

Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-B14	Fading Simulator	AMU-B9, -B10, -B11 or -B17	–	HW	AMU-B13 in second baseband path required for dual channel fading
AMU-B15	Fading Simulator Extension	AMU-B14	–	HW	
AMU-K71	Dynamic Fading and enhanced resolution	AMU-B14	–	SW	AMU-K71 can be installed twice if AMU-B15 is installed for dual channel fading
AMU-K72	Enhanced Fading Profiles	AMU-B14	–	SW	AMU-K72 can be installed twice if AMU-B15 is installed for dual channel fading

Step ④ Choose other options — OPTIONAL

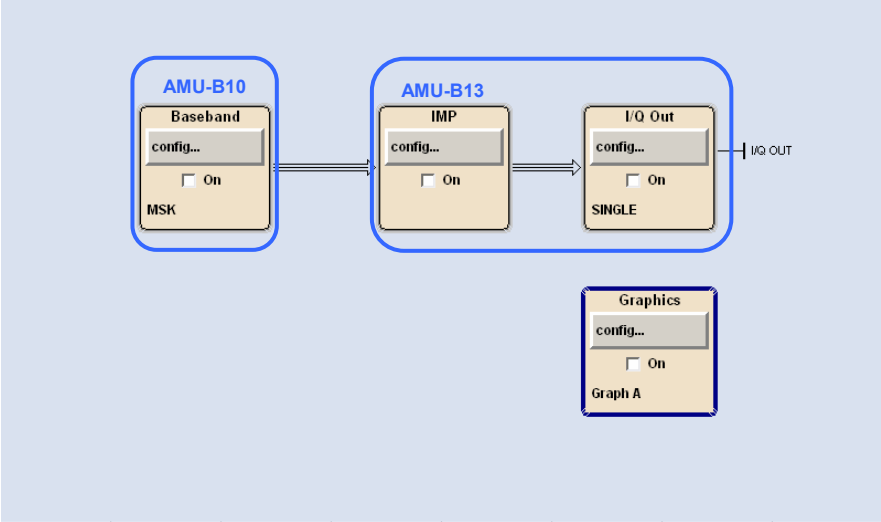
Option	Description	Requires	Not compatible with	HW or SW	Remarks
AMU-K80	BER/BLER Measurement	AMU-B9, -B10, -B11 or -B17	–	SW	
AMU-B81	I/Q Rear Connectors	AMU-B9, -B10, -B11 or -B17	–	HW	Factory fitted

Note: Digital modulation systems, noise and fading can be used either in baseband path A or baseband path B. The digital modulation systems, noise or fading will be required twice only if the baseband paths are used simultaneously. (For example, an instrument is equipped with one R&S®AMU-K40 and two R&S®AMU-B10. In this configuration, R&S®AMU-K40 can be used either on baseband path A or baseband path B. For simultaneous use on both baseband paths, R&S®AMU-K40 would be required twice.)

Configuration Examples

The modular design of the R&S®AMU200A allows the instrument to be equipped with up to two complete baseband paths. It is possible to have up to two baseband generators together with up to two baseband inputs and outputs. In addition to that the R&S®AMU200A can be configured to be a fully featured dual-path baseband fader. This allows a multitude of applications to be performed for which several instruments were previously required.
Note: all examples use R&S®AMU-B10 as baseband generator. Instead, R&S®AMU-B9 or R&S®AMU-B11 could also be used.

One baseband generator



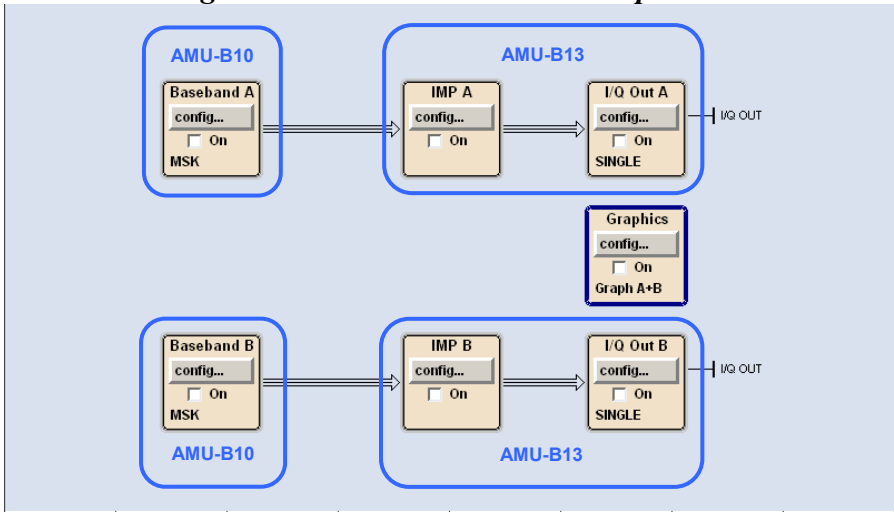
Instrument configuration

Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	1x	Baseband main module
AMU-B10	1x	Baseband generator

Application example

- Generation of digitally modulated analog I/Q signals

Two baseband generators and two baseband outputs



Instrument configuration

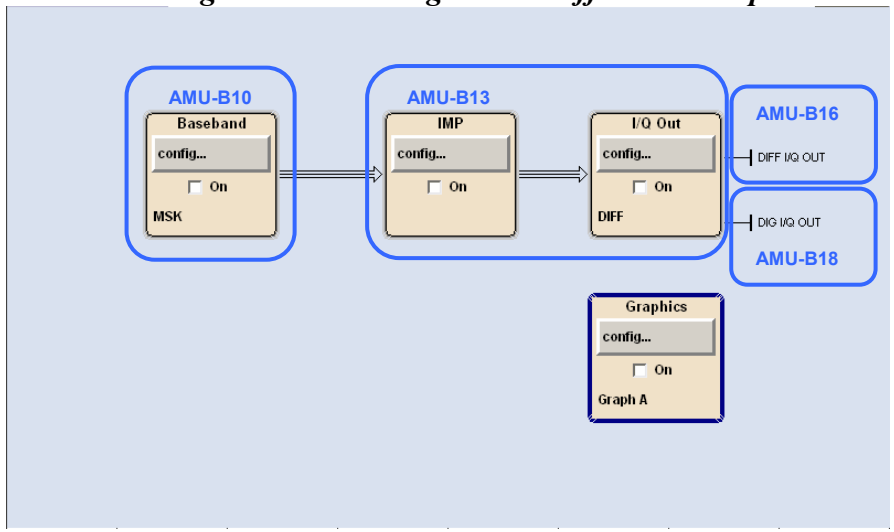
Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	2x	Baseband main module
AMU-B10	2x	Baseband generator

Application example

- Simultaneous generation of a two different baseband signals
- Simulation of antenna diversity

Note: A second R&S®AMU-B13 always requires a second baseband source.

One baseband generator with digital and differential outputs



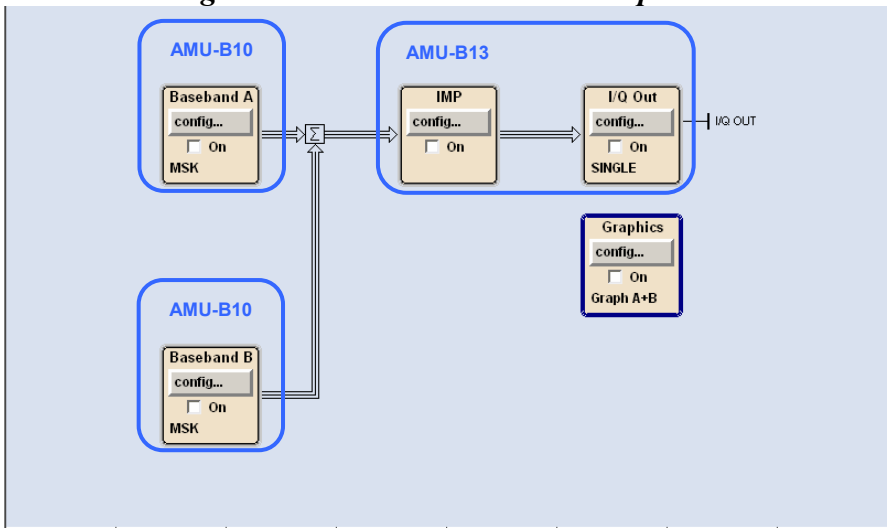
Instrument configuration

Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	1x	Baseband main module
AMU-B10	1x	Baseband generator
AMU-B16	1x	Differential I/Q out
AMU-B18	1x	Digital I/Q out

Application example

- Generation of digitally modulated I/Q signals that should be output digitally or differentially, e.g. as input signal for a HW simulator.

Two baseband generators and one baseband output



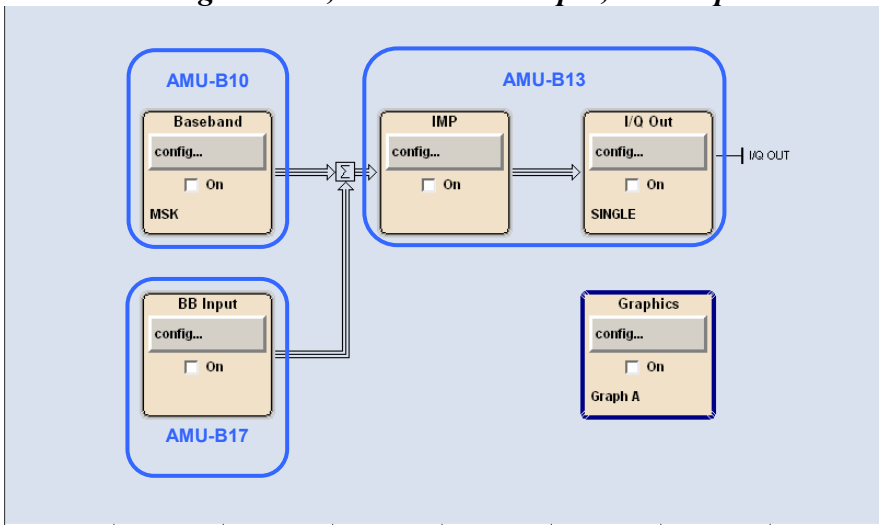
Instrument configuration

Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	1x	Baseband main module
AMU-B10	2x	Baseband generator

Application example

- Addition of real time signals of different standards
- Generation of multicarrier signals with real time components
- Simulation of transmit diversity

One baseband generator, one baseband input, one output



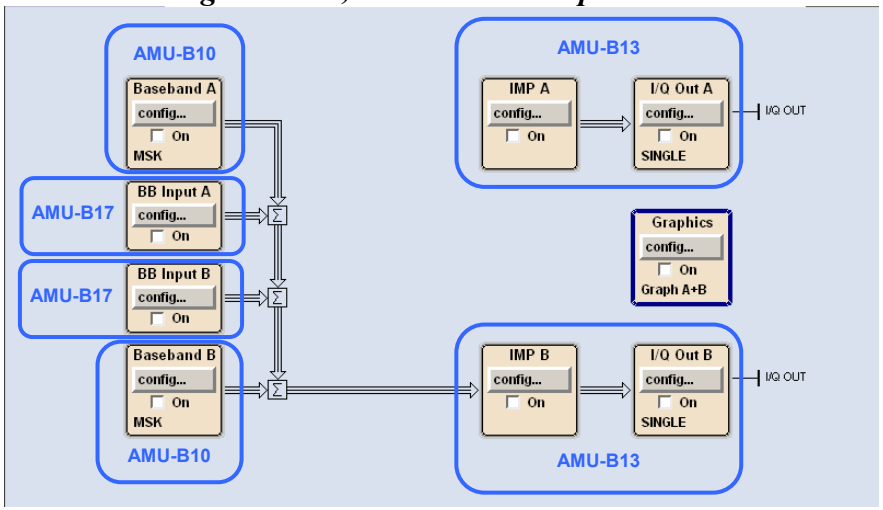
Instrument configuration

Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	1x	Baseband main module
AMU-B10	1x	Baseband generator
AMU-B17	1x	Baseband input (analog/digital)

Application example

- Combination of internally generated useful signal and external interferer

Two baseband generators, two baseband inputs



Instrument configuration

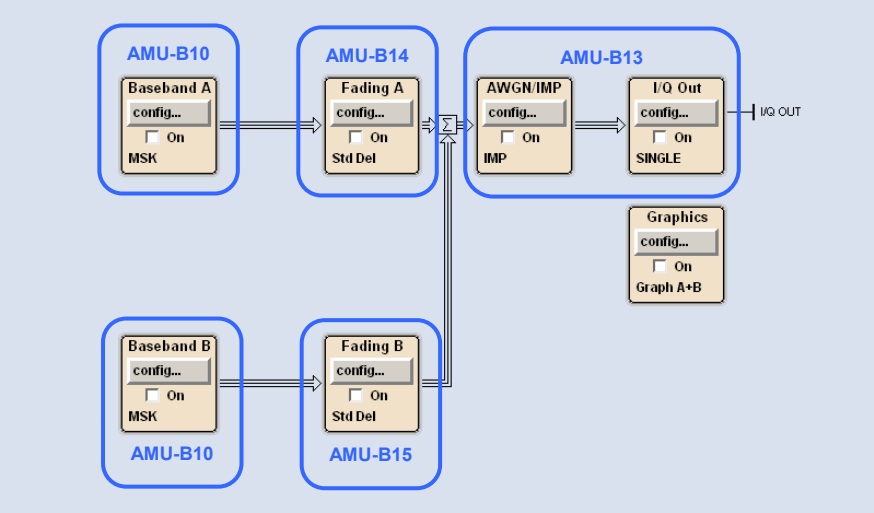
Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	1x	Baseband main module
AMU-B10	2x	Baseband generator
AMU-B17	2x	Baseband input (analog/digital)

Application example

- Addition of four real-time signals of different standards
- Generation of multicarrier signals with real time components

Note: The second R&S®AMU-B13 is always routed to bath B, therefore for addition of four signals only path B can be used.
A second R&S®AMU-B17 always requires a second R&S®AMU-B13

Two baseband generators and one baseband output with fading



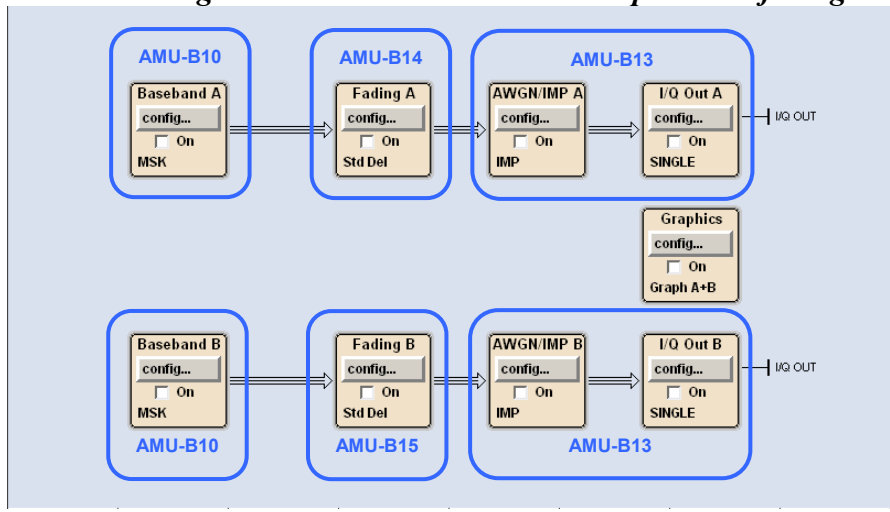
Instrument configuration

Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	1x	Baseband main module
AMU-B10	2x	Baseband generator
AMU-B14	1x	Fading Simulator
AMU-B15	1x	Fading Simulator Extension

Application example

- Independent fading of two GSM slots
- Combination of birth-death and moving propagation for 3GPP

Two baseband generators and two baseband outputs with fading



Instrument configuration

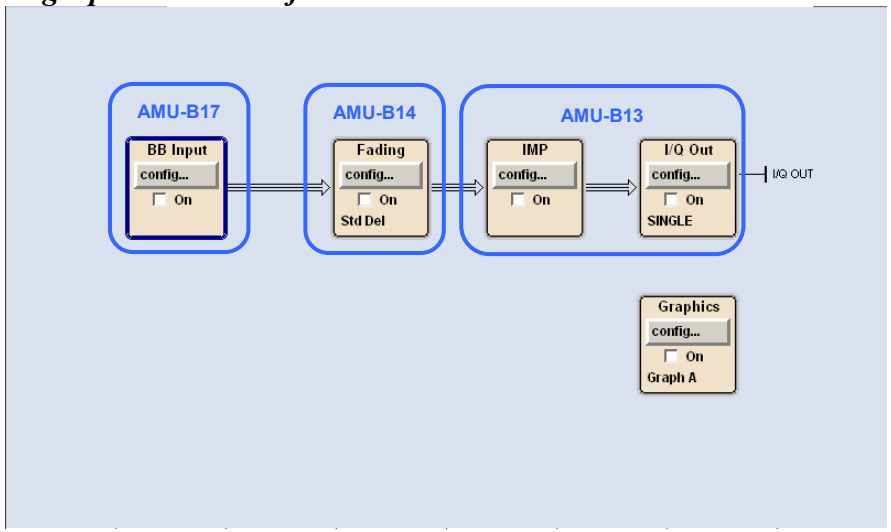
Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	2x	Baseband main module
AMU-B10	2x	Baseband generator
AMU-B14	1x	Fading Simulator
AMU-B15	1x	Fading Simulator Extension

Application example

- Setup for 3GPP TS 25.141 Receiver and Performance tests

Note: A second R&S®AMU-B13 always requires a second baseband source.

Single path baseband fader



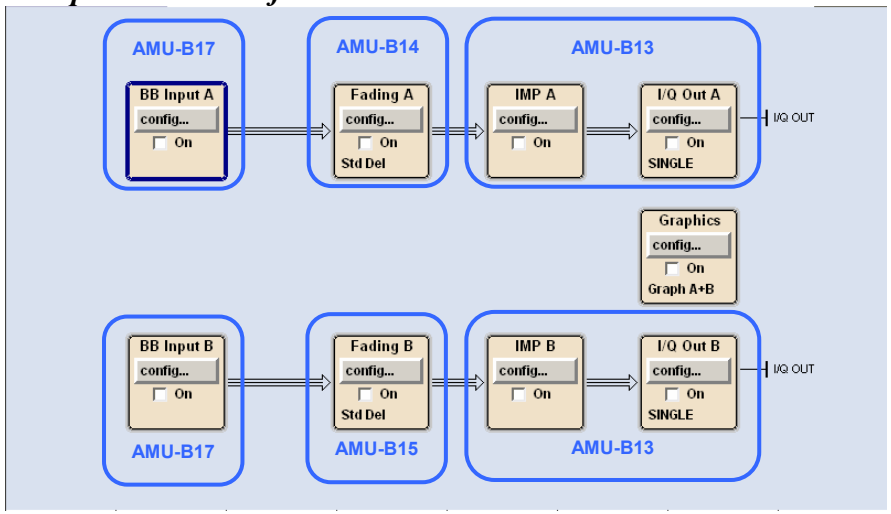
Instrument configuration

Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	1x	Baseband main module
AMU-B17	1x	Baseband input (analog/digital)
AMU-B14	1x	Fading Simulator
(AMU-B15	1x	Fading Simulator Extension)

Application example

- Fading of external I/Q signal (e.g. together with R&S®CMU200A)

Dual path baseband fader



Instrument configuration

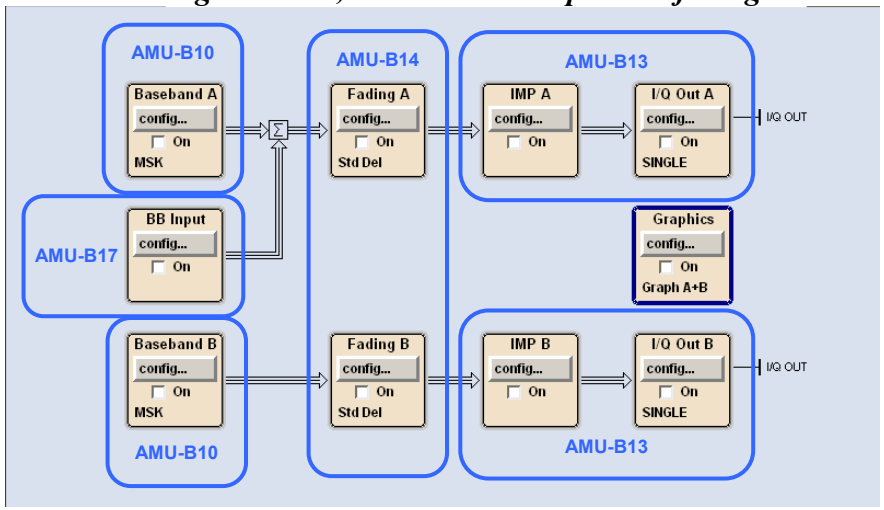
Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	2x	Baseband main module
AMU-B17	2x	Baseband generator
AMU-B14	1x	Fading Simulator
AMU-B15	1x	Fading Simulator Extension

Application example

- Fading of external I/Q signals for antenna diversity tests
- Correlated fading for different baseband signals

Note: A second R&S®AMU-B13 always requires a second baseband source. The second R&S®AMU-B13 is always routed to path B.

Two baseband generators, one baseband input and fading



Instrument configuration

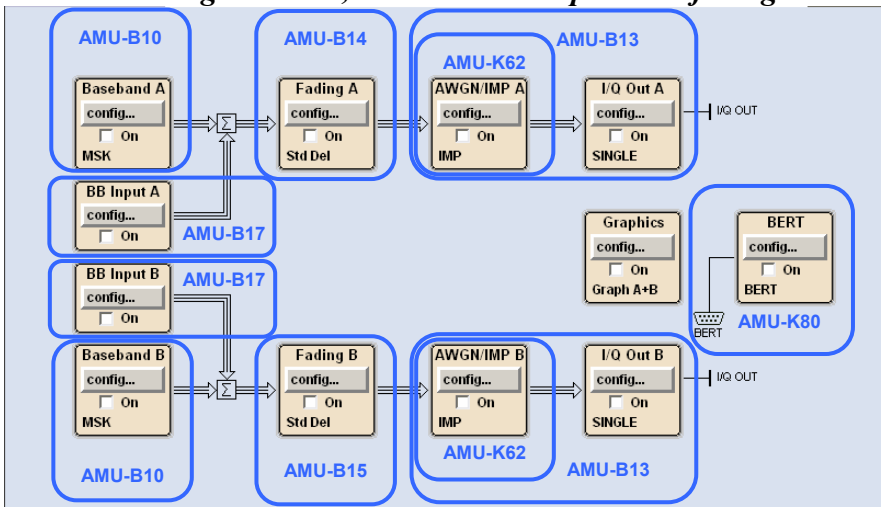
Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	2x	Baseband main module
AMU-B10	2x	Baseband generator
AMU-B17	1x	Baseband input (analog/digital)
AMU-B14	1x	Fading Simulator

Application example

- Fading of multi carrier signals with real time components and addition of interferer

Note: A second R&S®AMU-B13 always requires a second baseband source.

Two baseband generators, two baseband inputs and fading



Instrument configuration

Option	Installed	Description
AMU200A	1x	Base unit
AMU-B13	2x	Baseband main module
AMU-B10	2x	Baseband generator
AMU-B17	2x	Baseband input (analog/digital)
AMU-B14	1x	Fading Simulator
AMU-B15	1x	Fading Simulator Extension
AMU-K62	2x	AWGN
AMU-K80	1x	BER/BLER

Application example

- Transmit diversity for multi carrier signals with real time components
- Correlated fading for different baseband sources

Note: A second R&S®AMU-B13 always requires a second baseband source.

Ordering information

Designation	Type	Order No.
Baseband Signal Generator[4]	R&S®AMU200A	1402.4090.02
including power cable, Quick Start Guide and CD-ROM (with operating and service manual)		
Options		
Baseband		
Baseband Generator with ARB (128 Msample) and Digital Modulation (real-time)	R&S®AMU-B9	1402.8809.02
Baseband Generator with ARB (64 Msample) and Digital Modulation (real-time)	R&S®AMU-B10	1402.5300.02
Baseband Generator with ARB (16 Msample) and Digital Modulation (real-time)	R&S®AMU-B11	1402.5400.02
Baseband Main Module	R&S®AMU-B13	1402.5500.02
Differential I/Q Output	R&S®AMU-B16	1402.5800.02
Analog/Digital Baseband Inputs	R&S®AMU-B17	1402.5900.02
Digital I/Q Output	R&S®AMU-B18	1402.6006.02
Digital modulation systems		
Digital Standard GSM/EDGE	R&S®AMU-K40	1402.6106.02
Digital Standard 3GPP FDD	R&S®AMU-K42	1402.6206.02
3GPP Enhanced MS/BS Tests incl. HSDPA	R&S®AMU-K43	1402.6306.02
Digital Standard GPS	R&S®AMU-K44	1402.6406.02
Digital Standard HSUPA	R&S®AMU-K45	1402.8909.02
Digital Standard CDMA2000® incl. 1xEV-DV	R&S®AMU-K46	1402.6502.02
Digital Standard IEEE 802.11 (a/b/g)	R&S®AMU-K48	1402.6706.02
Digital Standard IEEE 802.16	R&S®AMU-K49	1402.7002.02
Digital Standard TD-SCDMA	R&S®AMU-K50	1402.8950.02
Digital Standard TD-SCDMA enhanced	R&S®AMU-K51	1402.9005.02
Digital Standard DVB-H	R&S®AMU-K52	1402.9557.02
Digital Standard EUTRA/LTE	R&S®AMU-K55	1402.9405.02
Multicarrier CW Signal Generation	R&S®AMU-K61	1402.7102.02

[4] The base unit can only be ordered with an R&S®AMU-B13 option plus one option out of R&S®AMU-B9, -B10, -B11, -B17.

Designation	Type	Order No.
Digital modulation systems using R&S®WinIQSIM2™ [5]		
Digital Standard GSM/EDGE	R&S®AMU-K240	1402.7602.02
Digital Standard 3GPP FDD	R&S®AMU-K242	1402.7702.02
3GPP Enhanced MS/BS Tests incl. HSDPA	R&S®AMU-K243	1402.7802.02
Digital Standard GPS	R&S®AMU-K244	1402.7902.02
Digital Standard HSUPA	R&S®AMU-K245	1402.8009.02
Digital Standard CDMA2000® incl. 1xEV-DV	R&S®AMU-K246	1402.8109.02
Digital Standard IEEE 802.11 (a/b/g)	R&S®AMU-K248	1402.8209.02
Digital Standard IEEE 802.16	R&S®AMU-K249	1402.8309.02
Digital Standard TD-SCDMA	R&S®AMU-K250	1402.8409.02
Digital Standard TD-SCDMA enhanced	R&S®AMU-K251	1402.8509.02
Digital Standard DVB-H	R&S®AMU-K252	1402.9505.02
Digital Standard EUTRA/LTE	R&S®AMU-K255	1402.9457.02
Multicarrier CW Signal Generation	R&S®AMU-K261	1402.8609.02
Additive White Gaussian Noise (AWGN) with R&S®WinIQSIM2™ [5]	R&S®AMU-K262	1402.8709.02
Digital modulation systems using external PC software		
Digital Standard Bluetooth™	R&S®AMU-K5	1402.9257.02
Pulse Sequencer	R&S®AMU-K6	1402.9805.02
Fading and noise		
Fading Simulator	R&S®AMU-B14	1402.5600.02
Fading Simulator Extension	R&S®AMU-B15	1402.5700.02
Additive White Gaussian Noise (AWGN)	R&S®AMU-K62	1402.7202.02
Dynamic Fading and Enhanced Resolution	R&S®AMU-K71	1402.7302.02
Enhanced Fading Profiles	R&S®AMU-K72	1402.9605.02
Other options		
BER/BLER Measurement	R&S®AMU-K80	1402.7402.02
I/Q Rear connectors	R&S®AMU-B81	1402.6858.02

[5] R&S®WinIQSIM2™ requires an external PC.

Designation	Type	Order No.
Recommended extras		
Hardcopy manuals (in English, UK)		1402.5222.32
Hardcopy manuals (in English, USA)		1402.5222.39
19" Rack Adapter	R&S®ZZA-411	1096.3283.00
Adapter for Telescopic Sliders	R&S®ZZA-T45	1109.3774.00
BNC Adapter for AUX I/O Connector	R&S®SMU-Z5	1160.4545.02
Keyboard with USB Interface (US assignment)	R&S®PSL-Z2	1157.6870.04
Mouse with USB Interface, optical	R&S®PSL-Z10	1157.7060.03
External USB CD-RW Drive	R&S®PSP-B6	1134.8201.22

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www.rohde-schwarz.com
Europe: +49 1805 12 4242, customersupport@rohde-schwarz.com
USA and Canada: +1-888-837-8772, customer.support@rsa.rohde-schwarz.com
Asia: +65 65 130 488, customersupport.asia@rohde-schwarz.com

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