

## QC System Price-List

Klippel GmbH, Germany  
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 Currency EUR

**All prices net, EXW (tax, duty, transportation, support extra)**

Item No.	Product	Explanation	required HW	Spec	Price per Unit
<b>Hardware</b>					
4000-100	PA - Production Analyzer	QC hardware incl. cable set		H4	4.200 EUR
<b>QC - Software for end-of-line testing (EOL)*</b>					
4002-010	QC STANDARD Software	EOL-testing with SPL Task and Impedance Task, open for additional optional tasks	PA	C3	3.300 EUR
4003-002	QC BASIC Software (incl. THD + R&B)	EOL-testing with SPL-Impedance task only	PA	C3	1.500 EUR
4000-210	QC Remote Configuration Software	allows modification of limits and set up without hardware	Dongle	S14	1.300 EUR
<b>Transducer Parameter Identification Modules*</b>					
4000-230	MSC - Motor + Suspension Check	QC-Task: fast measurement of voice coil offset and suspension asymmetry	KA3, PA	S13	4.950 EUR
4000-260	BAC - Balanced Armature Check	QC-Task: measure of armature offset	KA3, PA	S39	5.200 EUR
<b>Frequency Response + Distortion Modules*</b>					
4000-240	ALD - Air Leak Detection	QC-Task: detect air leaks in transducers and audio systems	KA3, PA	S18	3.200 EUR
<b>Simulation, Auralization Modules*</b>					
1001-104	DIF-AUR - Difference-Auralization (beta-version)	auralization of defect symptoms based on signal differences	Dongle	S22	3.800 EUR
4000-243	ALS - Air Leak Stethoscope	QC-Task: localization of air leaks in loudspeaker systems	KA3, PA	S30	2.800 EUR
<b>Transducer Part + Material Parameter Measurement*</b>					
2500-101	SPM Pro Bench	Measurement Bench without clamping parts for SPM Pro/Lite, LST	KA3/PA + Dongel, DA2	C2, C6	5.520 EUR
2500-300	LST Bench Set - for Internal Laser	for QC: LST testing of spiders, surrounds, cones, passive radiators, incl. internal laser mounting and adjustment slider	KA3/PA + Dongel, DA2	C6	950 EUR
2500-310	LST Bench Set - for External Laser	for QC: LST testing for RnD: linear SPM & MPM measurements of spiders, surrounds, cones, passive radiators, incl. external laser mounting and adjustment bar	KA3/PA + Dongel, DA2	C6	1.400 EUR
2500-142	LST - Internal Laser Fixture Set	2-dimensional internal Laser mounting and adjustment unit, incl. mounting brackets and screws, distance adjustment washer set		C6	300 EUR
2500-141	LST - External Laser Fixture	2-dimensional external laser mounting and adjustment boom, incl. sensor slide rail, laser sensor rod		C6	740 EUR
2500-302	Ring Set	clamping parts for SPM Bench + LST Bench		C2	1.310 EUR
2500-301	Cone Set (plastic)	clamping parts for LST Bench (SPM Bench)		C6	470 EUR
4000-242	LST Lite - Linear Suspension Test Lite	QC-Task: compliance check of spiders, cones and surrounds	KA3/PA + Dongle	C6	1.050 EUR
4000-244	LST Pro - Linear Suspension Test Professional	QC-Task: LST Lite features + monitoring mass and stiffness deviation for passive radiators	KA3/PA + Dongle	C6	2.000 EUR
4000-248	LST Pro Upgrade	upgrade from LSI Lite to LSI Pro		C6	950 EUR
<b>Post-Processing Tools*</b>					
4000-222	CST - Curve Statistics (beta-version)	statistical analysis of curve data, get meaningful limits from mass production	Dongle	S48	1.260 EUR
1001-106	ADC - Automatic Defect Classification (beta-version)	statistical analysis for classification and root cause analysis of test results	Dongle	S38	6.700 EUR
4000-220	MSP - Match-Speaker-Tool	find best matching pairs from a pool of speakers	Dongle	S15	1.900 EUR

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<b>Software Add-ons*</b>					
1001-107	SYN - External Synchronization	synchronizing digital audio (e.g. Bluetooth); option for QC-Task (QC-STANDARD or QC-Task required)	KA3, PA	S32	1.400 EUR
4000-250	PNI - Production Noise Immunity	coping with noisy environment; option for SPL Task (QC-STANDARD or SPL Task required)	KA3, PA	S21	2.300 EUR
4000-200	MHT - Meta Hearing Technology	defect detection beyond human hearing; option for SPL Task (QC STANDARD or SPL Task required)	KA3, PA	S20	1.370 EUR
4000-241	EXD - External Devices	QC-Task: integration of external measurement equipment (GPIB)	Dongle	S31	1.000 EUR
4000-245	EQA - Equalization & Alignment Standard	QC-Task: adjustment to user defined response (automatically or manually)	KA3, PA	S33	680 EUR
4000-270	DCX - Dynamic DC Check (beta-version)	QC-Task: measurement of AC/DC displacement with laser; option for SPL Task (QC STANDARD or SPL Task required, DC input modification of Production Analyzer Hardware required)	KA3, PA		3.200 EUR
<b>QC Software Update</b>					
4002-013	QC Update STANDARD System (V2 to V5)	update from version 2 to version 5			2.300 EUR
4002-014	QC Update STANDARD System (V3 to V5)	update from version 3 to version 5			1.900 EUR
4002-015	QC Update STANDARD System (V4 to V5)	update from version 4 to version 5			1.400 EUR
4002-016	QC Update BASIC System (V2 to V5)	update from version 2 to version 5			1.300 EUR
4002-017	QC Update BASIC System (V3 to V5)	update from version 3 to version 5			1.100 EUR
4002-018	QC Update BASIC System (V4 to V5)	update from version 4 to version 5			800 EUR
4002-012	QC Upgrade BASIC to STANDARD	upgrade QC BASIC to QC STANDARD System			on request
<b>Service</b>					
6001-200	KLIPPEL QC Support Contract	1 year subscription, incl. software updates + email support by KLIPPEL staff (per unit)			1.800 EUR
6000-001	Manufacturer Calibration	KA3, DA, PM8 or PA calibration with formal certificate, recommended every 2 years			490 EUR
6000-304	PA USBonly Hardware Modification + Calibration	PA modification to USBonly Version incl. Manufacturer Calibration		H4	740 EUR
6000-301	Production Analyzer Modification - High Sensitivity + Calibration	both speaker channels = High Sensitivity and Manufacturer Calibration		H4	520 EUR
6000-302	Production Analyzer Modification - Very High Sensitivity & Calibration	both speaker channels = Very High Sensitivity and Manufacturer Calibration		H4	520 EUR
6000-309	Production Analyzer Modification 0dB Mic Input Gain	both mic input channels adjusted to 0dB gain		H4	140 EUR
	Individual Production Analyzer Modification	several configurations (individual channels) are available			on request
	Multiplexer Modification	several configurations are available			on request

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<b>Accessories**</b>					
<b>Laser</b>					
2103-250	Laser Set LK-H052 (for Production Analyzer), Rev. 2.0	50mm +/- 10mm, for LST (incl. Controller LK-G5001P rev.2.0, 2m cable CB -A2, LEMO-XLR adapter for PA connection)	PA	A2	7.500 EUR
2102-042	Laser Set IL-065 for LST with PA	+/- 25mm, for LST only (incl. Controller IL-1000, PSU, LEMO-XLR adapter for PA connection)	PA	C6	1.580 EUR
2102-044	Laser Set IL-065 for LST with KA3	+/- 25mm, for LST only (incl. Controller IL-1000)	KA3	C6	1.430 EUR
<b>Microphones</b>					
2400-009	Mic 255 IEPE 1/2" Set	low noise - high sensitivity RnD & QC standard mic, 50mV/Pa, max. 135dB mic, case, sensitivity chart, mic clip, 2m BNC cable included		A4	990 EUR
2400-314	Mic 46AE IEPE 1/2" Set	low noise - high sensitivity mic, 50mV/Pa, max. 132dB mic, case, sensitivity chart, mic clip, 2m BNC cable included		A4	1.860 EUR
2400-312	Mic 40PP IEPE 1/4" Set	QC test & ambient noise mic, 50mV/Pa, max. 129dB mic, case, sensitivity chart, mic clip, 2m BNC cable included		A4	680 EUR
2400-006	Mic 202E IEPE 1/2" Set	higher SPL - wider bandwidth RnD & QC mic, 14mV/Pa, max. 143dB mic, case, sensitivity chart, mic clip, 2m BNC cable included		A4	1.840 EUR
2400-317	Mic 46AM IEPE 1/2" Set	higher SPL - wider bandwidth RnD & QC mic, 14.5mV/Pa, max. 143dB mic, case, sensitivity chart, mic clip, 2m BNC cable included		A4	1.850 EUR
2400-007	Mic 40PP-S1 IEPE 1/4" Set	QC testing - higher SPL mic, 10mV/Pa, max. 142dB mic, case, sensitivity chart, mic clip, 2m BNC cable included		A4	690 EUR
2400-005	Mic 40PL IEPE 1/4" Set	QC testing - higher SPL mic, 10mV/Pa, max. 142dB mic, case, sensitivity chart, mic clip, 2m SMB to BNC cable included		A4	770 EUR
2400-310	Mic 301E IEPE 1/4" Set	max. SPL - max. bandwidth mic, 5mV/Pa, max. 155dB mic, case, sensitivity chart, mic clip, 3m Microdot to BNC cable included		A4	1.970 EUR
2400-300	Mic 46BE-S5 IEPE 1/4" Set	max. SPL - max. bandwidth mic, 4mV/Pa, max. 154dB, prepolarized mic, case, sensitivity chart, mic clip, 2m SMB to BNC cable included		A4	2.300 EUR
2400-301	Mic Supply Unit; IEPE type, IV11-S set	1-channel, BNC I/Os, 5Vdc powered, switchable gain = 0dB/10 dB, incl. 1m BNC cable, BNC-XLR adapter, PSU		A4	720 EUR
2400-020	Mic Calibrator; 4000 CL.1, 114dB @ 1kHz Set	Sound Pressure Calibrator for 1", 1/2", 1/4" mics, 114dB at 1kHz, 9V battery supply, case, calibration certificate		A4	1.380 EUR
2400-023	Mic Calibrator; GRAS 42AG Multifunction Sound Calibrator, Class 1, Set	Sound Pressure Calibrator for 1", 1/2", 1/4" mics, 94 or 114dB at 250Hz or 1kHz, AAA battery supply, case, calibration certificate Not for Mic Sets MI17/MI17HL and MI18/MI18HL		A4	1.590 EUR
2400-024	Mic Calibrator Adapter 1/4" for GRAS 42AG	Supplement item for GRAS 42AG Multifunction Sound Calibrator, Class 1 Adapter for MI17/MI17HL and MI18/MI18HL			160 EUR
<b>Amplifier</b>					
2700-001	Amplifier QSC PLX 1802	2 channels 525 W at 4 ohm / bridged 1100 W at 8 ohm			1.300 EUR
2700-002	Amplifier QSC PLX 2502	2 channels 675 W at 4 ohm / bridged 1400 W at 8 ohm			1.400 EUR
2700-003	Amplifier QSC PLX 3602	2 channels 1100 W at 4 ohm / bridged 2600 W at 8 ohm			1.800 EUR
2700-008	Amplifier QSC GX 3 230V	2 channels 425 W at 4 ohm (only available as 230V version, not for US)			460 EUR
2700-009	Amplifier QSC GX 5	2 channels 700 W at 4 ohm			570 EUR
2700-010	Amplifier QSC GX 7	2 channels 1000 W at 4 ohm			900 EUR
2700-011	Amplifier Lake People PHONE-AMP F388-S, Set	4-channel headphone amp, min. 16 ohm (490 mW), TRS-SPEAKON cable, XLR-female to 2x XLR-male adapter included			980 EUR
<b>Multiplexer</b>					
2800-101	Multiplexer BNC	MUX81-42 BNC (Mic version)		A8	1.580 EUR
2800-102	Multiplexer XLR-IN	MUX81-42-XLR-IN (LINE-IN version, 8 x 1 or 4 x 2)		A8	1.470 EUR
2800-103	Multiplexer XLR-OUT	MUX81-42-XLR-OUT (LINE-OUT version, 1 x 8 or 2 x 4)		A8	1.470 EUR

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2800-104	Multiplexer Speakon	MUX81-42-SPEAKON (Speaker version)		A8	1.950 EUR
<b>Simulators</b>					
2400-073	GRAS 44AA Mouth Simulator, according to ITU-T Rec. P51 Set	with built-in power-amplifier, incl. CCITT P51 jig, IEEE 269 jig, 24Vdc power supply, 2m BNC cable, XLR-BNC adapter		A14	2.990 EUR
2400-077	GRAS 44AB Mouth Simulator, according to ITU-T Rec. P51 Set	without built-in power-amplifier, incl. CCITT P51 jig, IEEE 269 jig		A14	2.450 EUR
2400-079	GRAS 45CC-2 Headphone Test Fixture	Two channel (Stereo) Test Fixture for On-Ear (supra-aural) and Over-Ear (circum-aural) Headphones		A14	5.490 EUR
2400-080	GRAS 45CC-6 Headset Test Fixture Set	Two channel (Stereo) Test Fixture for On-Ear (supra-aural) and Over-Ear (circum-aural) Headsets		A14	8.110 EUR
2400-071	GRAS 43AC-S1 Ear Simulator Kit according to IEC 60318-4	Single channel (Mono) Ear Simulator Kit for In-Ear Headphones		A14	4.210 EUR
2400-075	GRAS 43AA-S2 Ear Simulator Kit according to IEC 60318-1 & -2	Single channel (Mono) Ear Simulator Kit for On-Ear (supra-aural) and Over-Ear (circum-aural) Headphones		A14	4.400 EUR
2400-078	GRAS 45CA-4 Ear Simulator Kit according to IEC 60318-1	Two channel (Stereo) Ear Simulator for On-Ear (supra-aural) and Over-Ear (circum-aural) Headphones		A14	11.820 EUR
2400-081	GRAS 45CC-4 Ear Simulator Kit according to IEC 60318-1	Two channel (Stereo) Ear Simulator for On-Ear (supra-aural) and Over-Ear (circum-aural) Headphones		A14	8.250 EUR
2400-082	GRAS 45CC-8 Ear & Mouth Simulator Kit according to IEC 60318-1 Set	Two channel (Stereo) Ear Simulator for On-Ear (supra-aural) and Over-Ear (circum-aural) Headsets		A14	10.990 EUR
<b>Various</b>					
2800-400	Prologix GPIB-USB Controller	GPIB-Controller for USB, required for External Devices Module	PA	S31	300 EUR
2800-001	Temperature + Humidity Sensor (for use with Klippel Production Analyzer)	automatic recording of temperature + humidity	PA	A6	320 EUR
2800-004	Bar Code Scanner	quick data entry via Barcode/QR-Code		A6	300 EUR
2800-005	Manual Sweep Controller	intuitive control of frequency and level for the manual sweep		A6	240 EUR

\* Module price per 1 license, running on 1 hardware unit or 1 USB dongle.

\*\* Prices for accessories from other suppliers (microphones, lasers, amplifiers) are valid only in combination with KLIPPEL R&D or QC System.

Also available on request:

- Various types of microphones from Microtech Gefell and G.R.A.S.
- Several cables

This document is subject to change without notice. Errors and omissions excepted.