

PRACTICAL GUIDE · 2026 EDITION

Initial Calibration and Verification The Handbook

A comprehensive handbook for manufacturers,
exporters and product managers



TASK · ASSESSMENT · RESULTS · OPERATION
TESTING · DOCUMENTATION · CHECKLISTS

How to use this handbook

Assess instruments before first use and maintain reliable operation.

This handbook addresses manufacturers, exporters, importers, plant builders and operators, including quality and metrology specialists. It covers initial calibration and legal initial verification of measuring instruments. The starting point is the AC Inorms initial-calibration page. Its topics are technically clarified and supplemented by an original working method, templates and cases. Both languages share the same structure. Russian provisions are explicitly treated as national rules.

Purpose of the guide

First define the measurement task and necessary procedure. Then address providers, unit identity, documents, preparation, result review and commissioning. Actual technical execution follows the applicable procedure; this handbook is not a substitute test method. Templates and numerical examples are educational aids rather than official certificates.

Pages 4-10 explain terminology and obligation screening. Pages 11-16 cover providers and planning, and pages 17-24 preparation and execution. Pages 25-31 address results and records. Pages 32-37 cover instrument types and lifecycle. Cases, FAQs and worksheets follow on pages 38-47. Sources and contacts appear on pages 48-50.

Edition 1.0 · As of 14 October 2026

Poverka denotes legal verification. Calibration, type approval and EAC conformity are separate services. Applicability depends on task, product and destination.

Contents

Linked chapters and printable worksheets.

Chapter	Pages
Terminology, duties and legal allocation	4-10
Providers, order and project records	11-16
Preparation and technical execution	17-24
Results, registry and documentation	25-31
Instrument types and lifecycle	32-37
Cases, FAQs and worksheets	38-47
Sources and contact	48-50

Suggested starting point

Record measurand, range, use, destination and serial numbers. Resolve the legal route before appointing the laboratory.

Three layers: EAC, type and individual instrument

Each document answers a different technical question.

EAC

Applicable product requirements

Type approval

Nationally approved type

Verification

Actual unit and result

Three separate releases · no automatic substitution

Assessment area	Project implementation
EAC conformity	Product safety and other requirements under applicable TRs.
Type approval	Approved type with metrological features, variants and conditions.
Verification	Confirmation of prescribed measurement requirements for a particular unit.
Calibration	Relationship between reference and indication, including uncertainty.
Operational release	Correct installation, valid evidence and authorised measurement task.

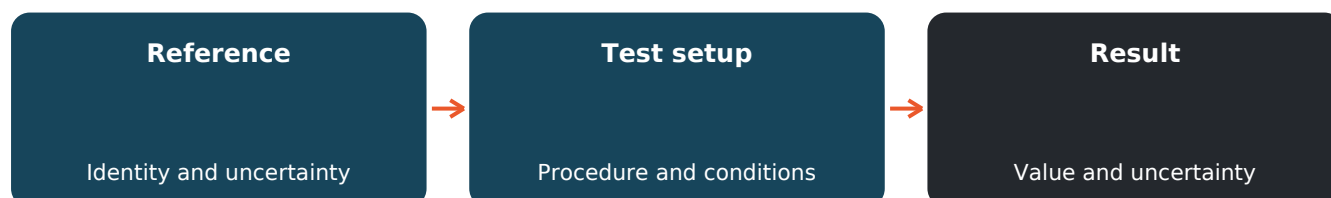
An EAC declaration does not automatically turn a process instrument into an approved billing instrument. Conversely, metrological approval does not automatically establish electrical safety or EMC compliance. The type dossier concerns the described type; the unit dossier records serial number, verification date, result and next due date. Connect both files for shipment. Instruments outside legal metrology may still face EAC requirements and contractual calibration duties.

In practice

Use a release matrix with three separate status fields. A green EAC status must not conceal an unresolved metrology status.

Calibration, traceability and voluntary evidence

Assess technical quality and legal acceptability separately.



Documented reference chain · each stage must be suitable

Assessment area	Project implementation
Calibration	Relate reference values and indications under defined conditions.
Traceability	Establish a documented chain to suitable references with uncertainties.
Adjustment	Adjust the instrument; preserve separate before/after results.
Voluntary assessment	Assess quality or contractual features under a named programme.
Legal effect	Mandatory approval or verification is not universally replaced.

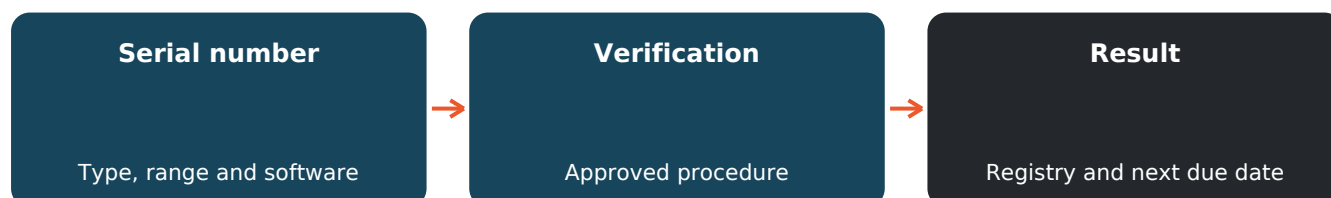
A traceable calibration certificate supports testing, process capability and maintenance. It identifies the instrument, procedure, conditions, results and uncertainties. Accreditation must cover the quantity and range. International recognition of laboratory services facilitates technical acceptance but does not automatically establish national use rights. Calibration or voluntary type assessment may be useful outside regulated measurement; describe the required statement precisely in the order.

In practice

A favourable calibration result does not automatically include a conformity decision. Agree limits and a decision rule for such a statement.

Poverka: initial verification of the unit

Assess prescribed requirements for an actual unit.



Type approval is not a verification record for every unit

Assessment area	Project implementation
Meaning	Legal verification, beyond determining measurement error.
Unit	Identifiable serial and actual configuration.
Basis	Applicable type and specified verification procedure.
Outcome	Suitable / unsuitable under the prescribed procedure.
Timing	Before first use within the covered legal field.

The service name must identify its intended legal purpose. An order for calibration for EAC leaves unclear whether it means a measurement relationship, legal verification or type testing. State unit, country, task and necessary evidence in the order. Actual equipment must match its allocated type. A sample report for another instrument does not support the supplied unit. Manufacturer and operator receive traceable results and clarify conditions for eligible use.

In practice

List initial verification / poverka and initial calibration separately.

When is a measurement legally regulated?

Purpose and legal field determine the obligation.

Assessment area	Project implementation
Trade / utilities	Examine quantity and energy billing and contractual delivery measurement.
Health / veterinary	Identify results used for diagnosis, treatment or official control.
Safety / environment	Assess workplace, industrial and environmental measurements under national law.
Official tasks	Record surveying, mapping, supervision and other regulated tasks.
Internal process	Distinguish control or research from legally regulated results.

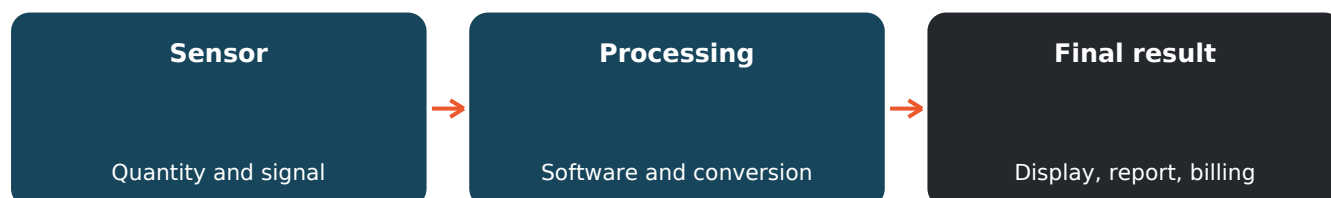
These examples are a screening tool, not a complete country list. In Russia, Article 1 of Law No. 102-FZ defines the regulated field; other states use their own boundaries. The actual measurement and applicable requirements are decisive. Operator ownership alone is insufficient: a private business may perform regulated measurements, while a public institution may use equipment outside such a task. For tenders also review the specific procurement conditions.

In practice

Ask the operator to identify in writing which results affect billing, release, health or official decisions.

Instrument, indicator or complete measuring system?

The approved object must match the actual measurement chain.



Document system boundary and result use expressly

Assessment area	Project implementation
Measuring instrument	Defined measurement function and specified metrological characteristics.
Indicator	Status or trend only? Examine quantitative use and accuracy claims.
Transducer	Describe sensor, conversion, output and supply together.
Measuring system	Define field instrument, computer, software and result generation.
Assembly	A machine may contain several independent measurement tasks.

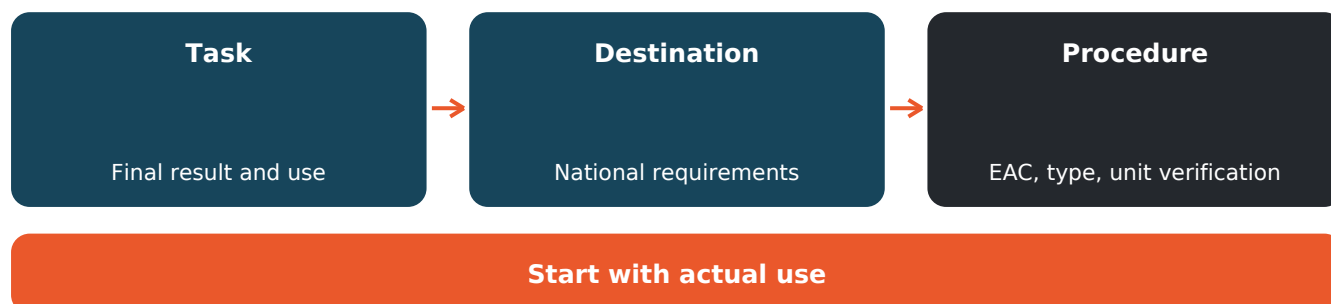
“Only a sensor” is not a reliable exemption. A transducer with a digital output may possess essential metrological characteristics. A calculated result from several inputs may also represent a relevant measurement. A scale combines load receptor, electronics, software and permitted configurations. In a flow system, temperature, pressure, density and volume conversion may influence the final result. State explicitly which elements belong to the approval scope.

In practice

Draw the measurement chain through to the displayed or billed result. Mark every adjustable factor.

Russia: legal basis and 2026 status

Allocate national metrological duties precisely.



Assessment area	Project implementation
Law	102-FZ of 26 June 2008: uniformity of measurements.
Scope	Review task and mandatory requirements.
Article 13	Initial verification before use; operation including repair.
Article 18	Calibration and conditions for using its results.
Procedure	Review 2510/2020, amendments and actual method.

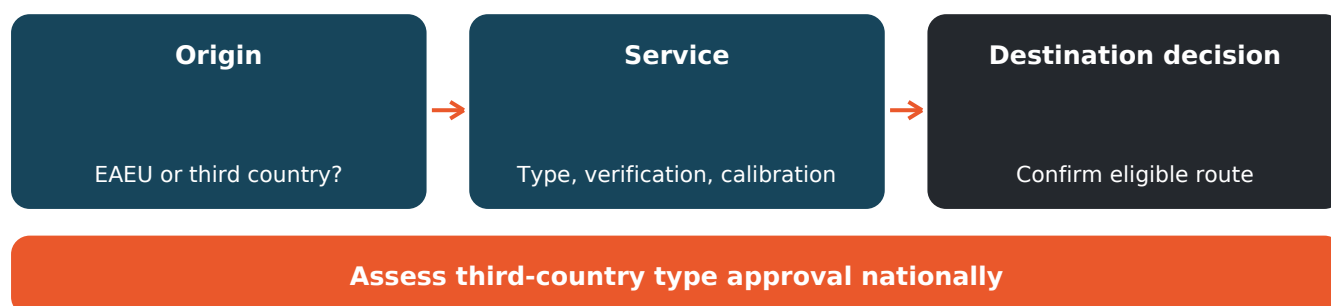
The sector page refers to FS N102; the precise designation is Federal Law No. 102-FZ. Older editions are insufficient for 2026 projects. Current wording places post-repair checks within periodic verification in operation; older descriptions may differ. Confirm technical examination depth against applicable rules and method. Drafts or announced replacements are not automatically current law. Recheck procedural status for work performed in 2027.

In practice

Include actual execution date in the legal-status review.

Other EAEU states and recognition

Do not generalise Russian duties to all five states.



Assessment area	Project implementation
Destination	Russia, Kazakhstan, Belarus, Armenia or Kyrgyzstan.
Procedure	Resolve national legal instrument-use requirements.
Evidence	Assess type, verification and calibration separately.
Recognition	Document eligible route and required decision.
Supply	Align languages, marking and operating evidence.

Common EAC market access does not automatically create identical national instrument procedures. Before appointment establish whether an existing foreign result can be used at destination and what steps are necessary. A familiar laboratory name alone does not establish recognition. Record recipient, legal basis, product scope and decision. Use separate release status for each destination. Keep evidence linked to actual units. Resolve recognition questions before committing to delivery.

In practice

Do not promise EAEU-wide effect while actual recognition remains unresolved.

Roles: manufacturer, provider and operator

Allocate work, technical responsibility and decision authority.

EAC

Applicable product requirements

Type approval

Nationally approved type

Verification

Actual unit and result

Three separate releases · no automatic substitution

Assessment area	Project implementation
Manufacturer	Identity, configuration, inputs and technical records.
Coordination	Scope, scheduling, translation and completeness.
Provider	Eligible execution, result and required submission.
Importer	Supply identity, record access and handover.
Operator	Eligible use, due dates, interventions and unit history.

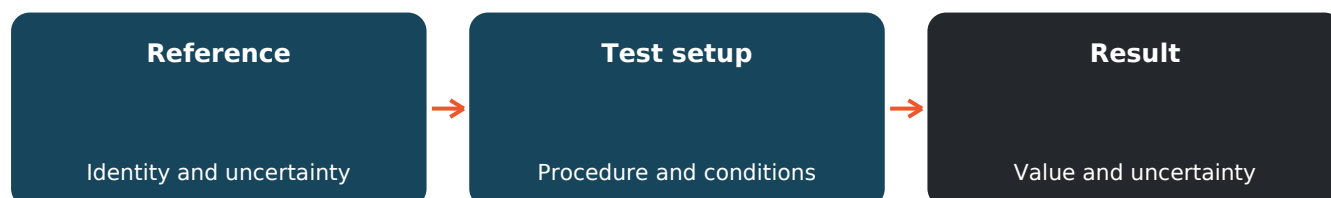
A consultancy may coordinate a project without holding accreditation for every metrological activity. Quotations should identify the actual examiner and result owner. Manufacturers confirm configuration and required records. Operators describe actual tasks so the correct procedure can be selected. Assign owners for missing inputs. Changes require more than commercial agreement: technical consequences and necessary repeat examinations need specialist assessment.

In practice

Check the executing provider's accreditation; coordination is not accreditation evidence.

Select a provider and check eligibility

Match measurand, range, procedure and location.



Documented reference chain · each stage must be suitable

Assessment area	Project implementation
Identity	Legal entity and actual executing provider.
Status	Current accreditation and restrictions.
Scope	Actual measurand, range and activity.
Execution	Eligible at laboratory, factory or on site?
Evidence	Report, result submission and necessary records.

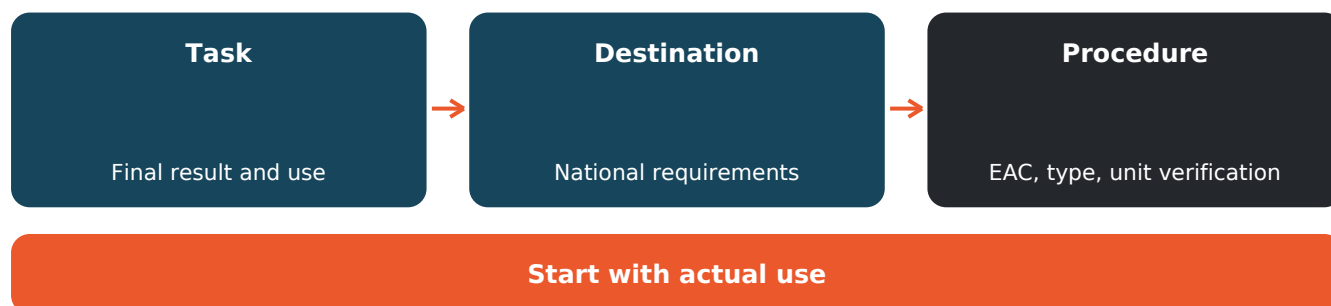
An accreditation logo is insufficient for selection. Allocate the actual service to documented scope. Check that calibration capability is not confused with verification eligibility. Identify subcontractors and responsibilities transparently. Measurement ranges and achievable uncertainty must suit the task. Agree site and on-location work expressly. An attractive slot is useful only if its result is eligible under the intended procedure.

In practice

Obtain written scope confirmation from the actual provider before shipment.

Service order without terminology confusion

A defined deliverable prevents later clarification.



Assessment area	Project implementation
Purpose	Internal quality, legal use or supply acceptance.
Service	Calibration, verification, adjustment or type testing.
Scope	Units, channels, ranges and accessories.
Output	Raw data, report, certificate and registry reference.
Deviation	Failed-result, repair and additional-cost process.

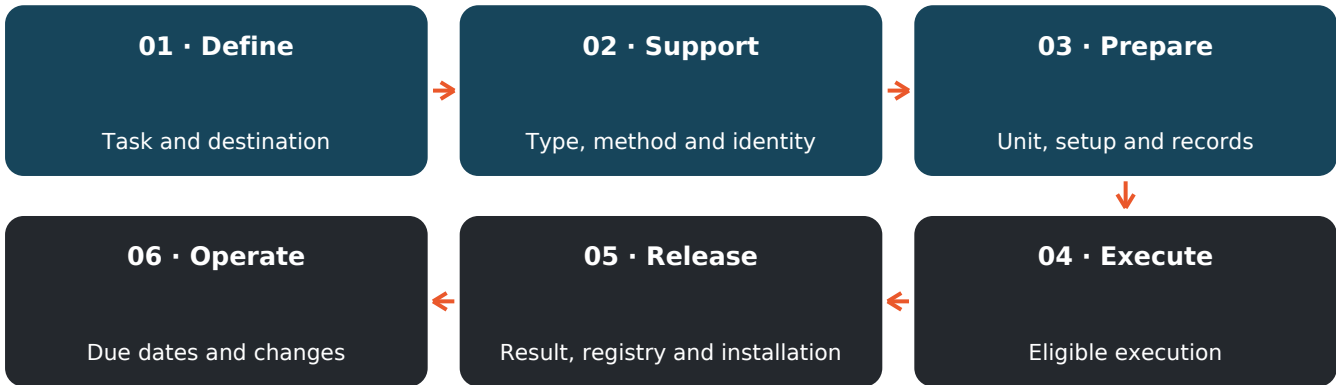
Attach an instrument and serial list. Agree whether to record the incoming state before adjustment. Do not alter settings without agreement where doing so would erase evidence of supply condition. Specify languages and result formats. Test points follow the applicable method; additional customer points are agreed separately. Calibration-only work must not be described as guaranteed legal operating release. Before execution the provider confirms assumptions and missing inputs.

In practice

Describe service and legal effect in separate fields.

Workflow: from need to operating release

Identify dependencies before scheduling.



Assessment area	Project implementation
01 Define	Task, destination, unit and necessary procedure.
02 Support	Confirm type status, method, identity and inputs.
03 Prepare	Provide unit, accessories, facilities and records.
04 Execute	Eligible execution with actual results.
05 Release	Review result, registry, installation and next due date.

First use is the final release gate, not the start of record planning. Missing type allocation may prevent verification. For systems, readiness can depend on completed installation. Arrange necessary references and interfaces early. Schedule allowances cover clarification and repeat work. A negative result stops the unit route pending investigation. Completion consists of a complete unit file and accountable use decision rather than merely receiving a document.

In practice

Commit to execution only after confirming technical prerequisites.

The complete project dossier

Distinguish core records from procedure-specific evidence.

Assessment area	Project implementation
Product / use	Data sheet, task, HS code, models and destinations.
Technical records	Drawings, circuits, principle, components and software.
Operating records	Instructions, technical passport and relevant safety documents.
Metrology package	Type description, test programme, verification procedure and reports.
Parties / contracts	Manufacturer, factories, applicant, importer and authorisations.
Existing evidence	CE, MID, OIML, EAC, calibration and other complete reports.

Agree a records list for the actual order. Connect passport, instructions, existing measurement reports and conformity evidence to unit and revision. Additional records depend on procedure and claimed evidence. ISO certification does not replace unit examination. The index records language, date, source and approval. Resolve missing records before confirming scheduling.

In practice

The dossier index tracks available, technically reviewed, translated, approved and submitted status.

Type description and variant matrix

Trace the approved type through to the ordered configuration.

Type description

Models, ranges, limits

Supplied unit

Hardware and software

Assessment file

Sample, procedure, report

All records must describe the same approved version

Assessment area	Project implementation
Measurement principle	Explain physical relationship and signal processing.
Ranges / classes	Associate range, subranges, error limits and conditions.
Variants	Compare sensor, connection, electronics, materials and options.
Identification	Model code, serial numbers, firmware and permitted combinations.
Interfaces	Describe communication, settings, protection and result export.
Testing link	Which samples cover which variant and limit?

The variant matrix exposes common and differing features. Separate cosmetic options from influences on result generation and protection. A longer measuring path, another sensor or new temperature compensation may alter metrological assessment. For every approved variant the customer must be able to identify the supplied range and use limits. For renaming determine whether only the commercial designation or the actual type has changed.

In practice

A type description must not claim options that remain technically unassessed or outside approval scope.

Unit identity and configuration

Assess an identifiable unit rather than a general model name.

Type description

Models, ranges, limits

Supplied unit

Hardware and software

Assessment file

Sample, procedure, report

All records must describe the same approved version

Assessment area	Project implementation
Identifier	Model, serial, manufacturer and date.
Measurement	Measurand, units, channel, range and resolution.
Configuration	Sensor, display, processor and accessories.
Software	Identity, relevant parameters and protection.
Match	Type description, order and actual supplied instrument.

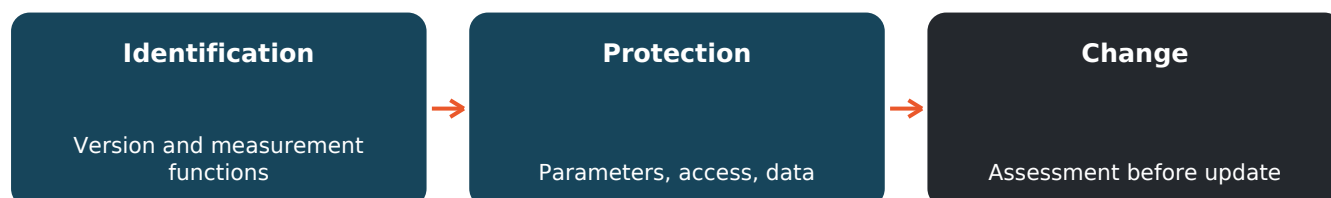
Take legible photos of identification and connections. List separately supplied sensors with their serials. Clearly identify tested combinations with interchangeable heads. A channel 1 record does not automatically cover channel 2. Actual scaling and units must match the subsequently used final result. Determine whether later installation changes configuration. The laboratory receives the same approved revision as manufacturer and operator.

In practice

Use the same identity list on receipt and return.

Software, firmware and data integrity

Identify and protect metrologically relevant functions.



Maintain traceability of result generation and protected functions

Assessment area	Project implementation
Identification	Make version, checksum or other specified identifier available.
Separation	Separate result generation from display, convenience and service functions.
Parameters	Control calibration factors, units, limits and compensation.
Access	Permissions, sealing or other prescribed safeguards.
Change	Assess update effects, version history and approval consequences in advance.
Data flow	Document timestamps, transfer, storage and calculation path.

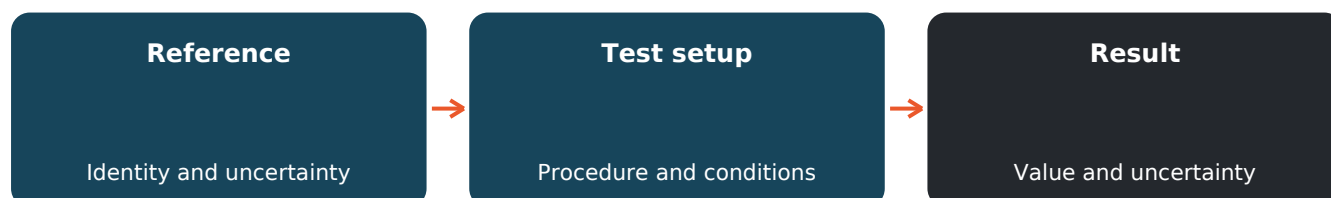
A software change can alter results without new hardware. Rounding, filtering, temperature correction or a new conversion factor may change the reported value. Approved software identification must be reproducible in delivery and service. A cloud display may sit outside the metrological core or itself form a legally relevant final result; architecture determines this. Distribute updates after technical assessment and any required procedural approval.

In practice

Prepare a software annex with version identifier, parameters, protection, update route and return to the approved version.

Test procedures, references and traceability

The procedure must actually cover instrument, range and conditions.



Documented reference chain · each stage must be suitable

Assessment area	Project implementation
Procedure reference	Record approved or prescribed procedure and edition.
Test points	Plan range, directions, repetitions and influence quantities.
References	Provide suitable standards, gases, weights or other references.
Uncertainty	Demonstrate suitability of the setup for the required decision.
Measurement method	Separate instrument verification from any measurement-method attestation.
Operating conditions	Consider installation, medium, temperature and supply in the test plan.

A good reference alone does not create a good measurement. Resolution, repeatability, installation and ambient conditions also contribute uncertainty. Record reference identity, calibration status, validity and use. Indirect measurements may require recognised or attested measurement methodology; an approved component does not automatically replace that assessment. State whether the order evaluates the type, individual instrument or measurement method.

In practice

Confirm test equipment and procedure before sending samples. Unavailable flow facilities or reference gases can determine the schedule.

Preparation and safe receipt

Provide a clean, complete and testable instrument.

Type description

Models, ranges, limits

Supplied unit

Hardware and software

Assessment file

Sample, procedure, report

All records must describe the same approved version

Assessment area	Project implementation
Condition	Damage, contamination, preservation and seals.
Safety	Resolve decontamination and substance residues before shipment.
Accessories	Power, leads, adapters, software and operating access.
Records	Instructions, passport, method and necessary inputs.
Receipt	Confirm identity, photos, condition and missing parts.

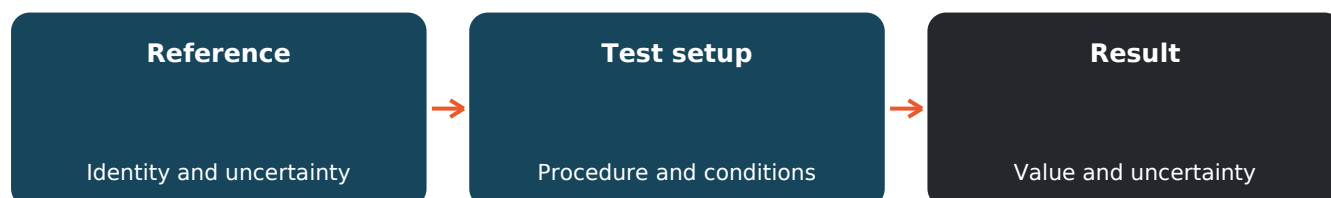
Record incoming state before altering the instrument. Equipment exposed to aggressive substances needs safe preparation and supporting records. Missing accessories may block the scheduled work. Resolve warm-up time, orientation and access details before transport. Specialists decide acceptance and examination where damage is apparent. Packaging protects connections and sensitive parts. Receipt records identify whether examination concerns supply state or a serviced condition.

In practice

Flag untestable instruments as unresolved receipt findings.

References and a suitable test setup

Confirm technical suitability before execution.



Documented reference chain · each stage must be suitable

Assessment area	Project implementation
Reference	Identity, valid evidence and suitable quantity.
Range	Necessary points, resolution and capacity.
Environment	Temperature, humidity, vibration and supply.
Connection	Leak tightness, lines, contacts and orientation.
Records	Document setup, conditions and deviations.

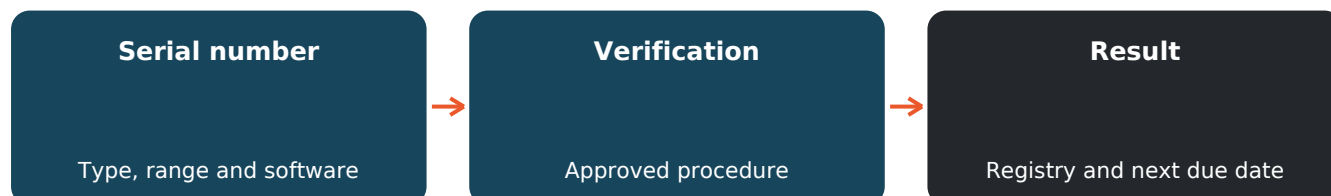
Select references against the task. Valid evidence for an unsuitable range does not make the setup adequate. Consider adapters, lines and processing-channel influences. Distinguish reference equipment from the tested unit in drawings and data. Stabilise under method and instrument provisions. Unsuitable environmental conditions cannot be corrected by editing the final report. Keep the setup reproducible for repeat examination.

In practice

A setup plan with reference IDs supports technical clarification.

Test points, sequence and raw data

The applicable method governs execution.



Type approval is not a verification record for every unit

Assessment area	Project implementation
Points	Prescribed ranges, channels and loads.
Sequence	Stabilisation, repetitions and direction changes.
Data	Record indication, reference, units and timing.
Evaluation	Apply specified criteria and decision rule.
Deviation	Trace interruptions and technical causes.

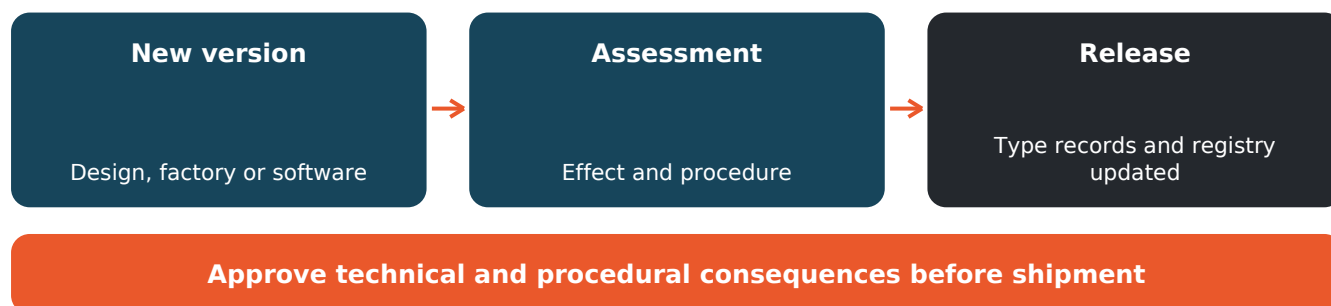
This handbook sets no universal test-point count. Customer lists supplement the applicable method only as agreed. Capture actual raw values rather than only rounded outputs. Automated evaluation requires correct formulae, units and version control. Investigate outliers instead of deleting them without justification. Retain repetitions, corrections and conditions traceably. The final finding should be explainable from inputs and calculations.

In practice

Treat an omitted mandatory examination as unresolved, not passed.

Separate calibration and adjustment

Preserve incoming and final states traceably.



Assessment area	Project implementation
Calibration	Determine measurement relationship and uncertainty.
Adjustment	Technical setting changes instrument characteristics.
Before	Document as-found values where commissioned.
After	Record as-left values and performed changes.
Legal consequence	Separately assess necessary verification / review.

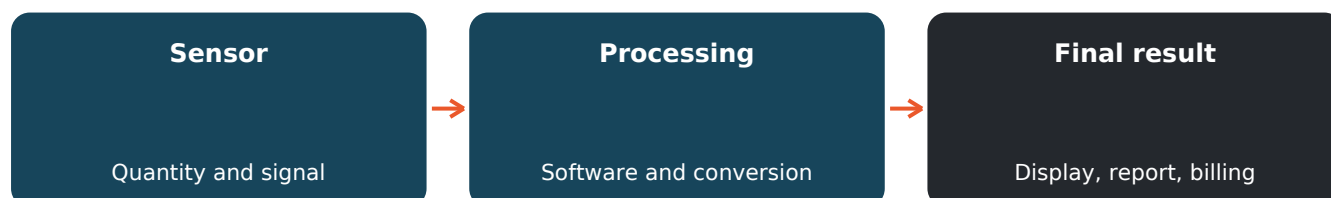
An instrument may show a large error before adjustment and a small error afterward. Final reporting must preserve that distinction. Agree who authorises adjustment and whether it is permitted. Consider protected settings and seals. New settings may affect earlier results; operators then review affected measurements. Old evidence does not establish a changed state. Calibration alone does not automatically alter the instrument.

In practice

Link as-found and as-left to date, intervention and accountable person.

On-site assessment and complete measurement chain

Assess actual operating configuration.



Document system boundary and result use expressly

Assessment area	Project implementation
Boundary	Describe sensor through the used final result.
Access	Test connections, downtime and reference setup.
System	Leads, processor, compensation and software.
Site	Environment, installation and provider eligibility.
Release	Reconcile examined state with later installation.

A removed sensor may perform suitably while the full system is incorrectly scaled. State whether the order concerns a component or measurement chain. The competent provider confirms eligible execution. Plan downtime, permits and safe access for site work. Keep unexamined channels visible. Afterward check altered settings, connections and protection. Site assessment does not automatically approve every plant function.

In practice

Identify instrument, channel and system as distinct boundaries.

Test results, error limits and uncertainty

A decision needs results, limits and an appropriate rule.

Feature	Meaning
Measurement error	Difference between measured value and suitable reference value.
Error limit	Permitted error under prescribed conditions.
Uncertainty	Quantified dispersion of values attributed to the measurement.
Decision rule	Defined treatment of uncertainty for the conformity statement.
Test report	Instrument, procedure, conditions, results and traceable decision.

Illustrative example: an error of +0.8 units with a limit of ± 1.0 units initially appears acceptable. Expanded uncertainty of 0.3 units shows why comparing central values alone does not fully describe the decision. The prescribed procedure or agreed decision rule determines the statement. This example is not an official verification rule and establishes no universal guard band.

Review the report before release

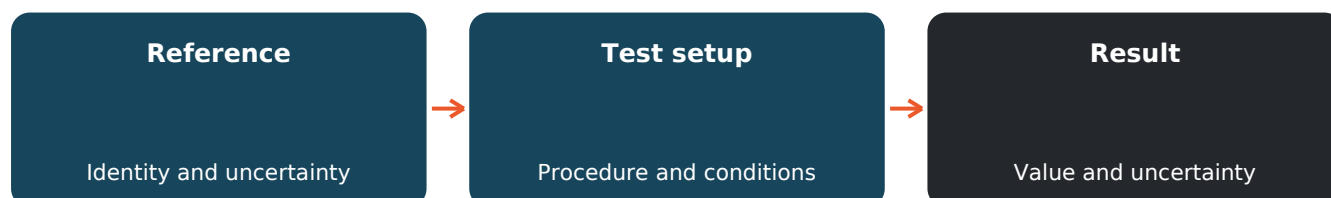
Check type, serial number, software, range, units, references and conditions. The report must match the submitted sample and intended variant. Do not extrapolate beyond the assessed range unless the procedure permits it. Retain failures, corrective work and repeat tests in the history. Translate claims such as “high precision” into measurable features.

Documented decision

Apply the prescribed procedure for legal verification. For voluntary calibration with a conformity statement agree limits and the decision rule expressly.

Worked example: error and decision

Educational values, not an official verification method.



Documented reference chain · each stage must be suitable

A pressure instrument indicates 100.40 kPa for a 100.00 kPa reference. Indication error is $E = \text{indication} - \text{reference} = +0.40 \text{ kPa}$. Assume expanded uncertainty $U = 0.30 \text{ kPa}$ at that point and a fictional specification of $\pm 0.50 \text{ kPa}$.

Assessment	Calculation / meaning
Error	+0.40 kPa: indication exceeds reference.
Simple limit	$ E = 0.40 \leq 0.50 \text{ kPa}$.
Conservative example rule	$ E + U = 0.70 > 0.50 \text{ kPa}$.
Difference	Different rules may lead to different decisions.
Legal assessment	Prescribed procedure and rule take precedence.

The conservative rule is explanatory only. It must not independently replace prescribed poverka rules. Uncertainty is neither observed error nor a universal correction. Calibration results can be reported without conformity statements. If a statement is needed, define specification and decision rule beforehand.

Plausibility review

Check units, sign, rounding and rule before accepting a passed statement.

Review a calibration certificate technically

Understand the document's statement and limits.

Type registry

Type and attachments

Unit result

Serial number and assessment

Project file

Identity and release status

Check type and unit information separately and connect them

Assessment area	Project implementation
Allocation	Unit, serial, ranges and actual condition.
Values	Points, results, units and corrections.
Uncertainty	Statement, coverage factor and suitable explanation.
Conditions	Method, environment, setup and reference linkage.
Statement	Distinguish calibration, conformity and legal verification.

A polished certificate is useful only if unit and task match. Check actual examined points and required channels. Room-temperature results do not automatically cover all service temperatures. Resolve missing particulars before use release. A calibration sticker does not replace the full result file. Contact the issuer on contradictions rather than editing the original yourself. Retain the issued edition with attachments.

In practice

Compare report coverage and intended use in a result checklist.

Registry checks: type and unit result

Search the two records separately and connect them.

Type registry

Type and attachments

Unit result

Serial number and assessment

Project file

Identity and release status

Check type and unit information separately and connect them

Assessment area	Project implementation
Type record	Search manufacturer, type, registry ID and approval scope.
Attachments	Check type description, variants, procedure and software.
Unit record	Match serial number, date, provider and result.
Validity	Check restrictions, interval and next due date.
Evidence	Archive location, access date and relevant record.
Discrepancy	Resolve unclear identifiers or missing results before release.

Russia provides type and verification information in the federal information fund. Use the official portal; third-party search services can help orientation but are not authoritative. Spelling, leading zeros and model suffixes must match the delivered unit. A similar model name is insufficient. Contact the responsible verification provider for a missing record; do not claim positive status while unresolved.

In practice

The unit dossier connects type registration and result identifiers to the same serial number and configuration.

Marking: three separate layers

Keep EAC, type-approval marking and verification evidence distinct.

EAC mark

Product conformity

Type mark

National type reference

Verification evidence

Unit and result

Distinguish marking layers · not official artwork

Assessment area	Project implementation
EAC mark	Based on the required applicable EAC conformity procedures.
Type-approval mark	Nationally prescribed mark with approved scope and placement.
Verification	Result, any required mark/seal and registry information.
Nameplate	Manufacturer, model, serial number and relevant technical particulars.
Accompanying file	Track approval reference, software, procedure and units.
Artwork release	Match product, approved type description and national rules.

EAC, national type and verification marks describe distinct evidence. Accordingly, the sector page's expression EAC verification mark is clarified. An approved type does not prove examination of the current serial. Use official marks only under applicable rules. In Russia check the required federal-fund result entry; additional certificates, marks or passport entries follow the relevant procedure. Handbook diagrams are not artwork templates.

In practice

Approve mark, wording, dimensions, location, visibility and link to the actual variant.

Instructions, technical passport and translation

Operation and verification must use consistent instrument details.

Assessment area	Project implementation
Instructions	Purpose, installation, operation, maintenance, faults and limits.
Measurement details	Present range, unit, error limits and conditions fully.
Technical passport	Identity, equipment, verification information and history as required.
Verification access	Describe reference connection, settings, seals and safe assessment.
Software	Explain identifier, permitted parameters, protection and update limits.
Language	Determine destination, procedure and operator requirements.

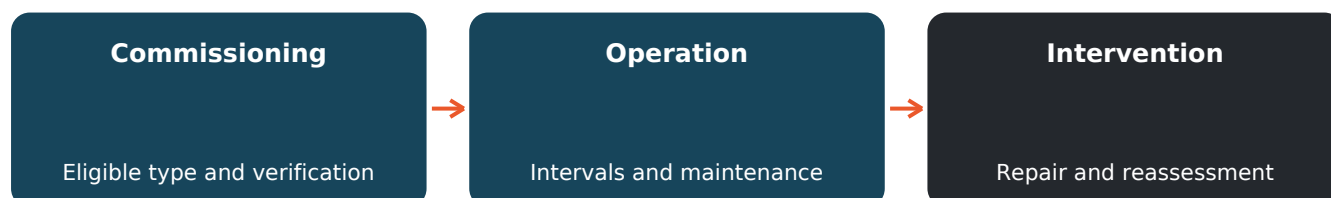
Technical translation needs a controlled glossary. Translate poverka as verification; give calibration, adjustment and type approval distinct terms. Check numbers, decimal notation, units and reference quantities. Russian documents alone do not automatically fulfil every destination's language duties. Translation identifies the same models and software as the type description and test report. For plants explain actual installation without expanding approved limits through new instructions.

In practice

Provide the operator with approved language records, type reference, serial number and required verification details.

Handover and commissioning release

Connect evidence to installation and actual use.



Plan verification, calibration and maintenance separately

Assessment area	Project implementation
Instrument	Reconcile delivered serials and configuration.
Procedure	Required type and unit duties complete?
Records	Complete passport, instructions, results and attachments.
Installation	Eligible installation, scaling, protection and final result.
Operation	Owner, next due date and service process defined.

Receipt confirmation is not technical operating release. Operators check whether the evidenced task matches real use. A calibrated instrument may suit internal testing while remaining ineligible for legal billing. Do not exchange evidence between similar-looking units. Identify decision owners for unresolved registry or identity issues. Complete necessary assessments and provide accessible records before first use. Preserve original supply records alongside traceable later operating entries.

In practice

Missing mandatory evidence means unresolved release status.

Temperature, pressure, humidity and process sensing

Sensor, transmitter and installation define the technical task.

Assessment area	Project implementation
Temperature	Sensor type, range, immersion depth, response and wiring.
Pressure	Absolute, gauge or differential pressure and overload limits.
Humidity	Reference quantity, temperature dependence and permitted medium.
Signal	Analogue/digital output, scaling and result filtering.
Installation	Thermowell, mounting, wiring and ambient conditions.
Assessment	Plan test points, hysteresis, repeatability and influences.

A laboratory result under reference conditions is not automatically the performance of the installed point. Heat conduction, vibration or an unsuitable pressure line may alter the result. Approved features must match the supplied variant. A 4–20 mA output has defined scaling; changes in the control system can display a correct sensor result incorrectly. Safety-related measurements additionally require examination of functional use and applicable installation requirements.

In practice

At acceptance check sensor range, output scaling and control-system indication together.

Mass, flow, volume and trade measurements

Record measurement conditions and commercial use together.

Assessment area	Project implementation
Weighing	Distinguish load range, division, accuracy class and mode of use.
Flow	Specify fluid, flow, pressure, temperature and installation lengths.
Volume / quantity	Document operating/reference conditions and conversion.
Billing	Identify final value, rounding and data transfer.
References	Provide weights, test vessels or suitable flow references.
Installation	Ensure permitted combinations and on-site verifiability.

Relate error specifications to the intended range and reference quantity. “0.5%” without stating reading, full scale or conditions is insufficient for assessment. For gas or liquid the billed result may combine several measurements. Dynamic weighing involves operating sequence and conveyor conditions. Before ordering tests establish whether the procedure covers the individual instrument or the complete commercial measurement chain.

In practice

Disclose typical, minimum and maximum operating conditions and the result used commercially.

Gas analysis, environment and workplace safety

Sampling and evaluation can determine the measurement result.

Assessment area	Project implementation
Analyte	Define substance, concentration, unit and measurement principle.
Cross-sensitivity	Record interferents, matrix, humidity and temperature.
Sampling	Consider lines, filters, conditioning, flow and losses.
Reference	Use suitable traceable reference gases/materials.
Protective function	Define alarm, limit, response time and protective action.
Environmental report	Assess measurement-method and official-reporting requirements.

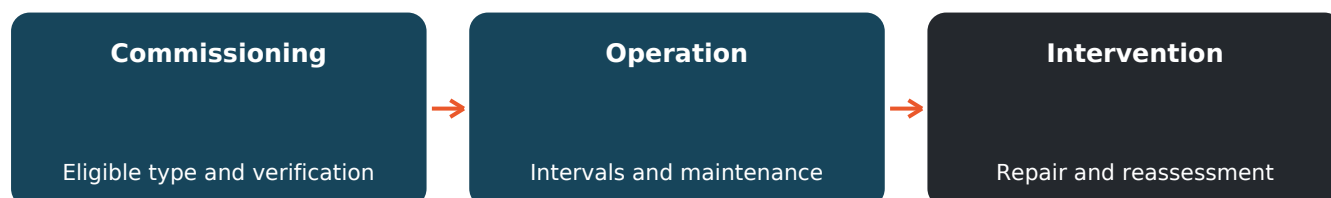
Type approval of an analyser does not describe every possible sampling plant. Moisture removal, adsorption or longer lines may change the measured substance. Reference gases must match concentration, matrix and required statement. Gas detectors may involve metrology, Ex and other safety requirements. Official emissions or environmental measurements additionally require method and evaluation review. A functional gas check is not automatically complete legal verification.

In practice

Include substances, matrix, concentration ranges, sampling diagram and purpose of the reported result in the enquiry.

Verification intervals and calibration programme

Distinguish statutory intervals and internal quality planning.



Plan verification, calibration and maintenance separately

Assessment area	Project implementation
Verification	Review prescribed interval and actual result status.
Calibration	Plan interval against task, risk and experience.
Influences	Use, drift, transport, environment and interventions.
Intermediate checks	Define suitable functional or comparison checks.
Organisation	Advance notice, replacement instrument and owner.

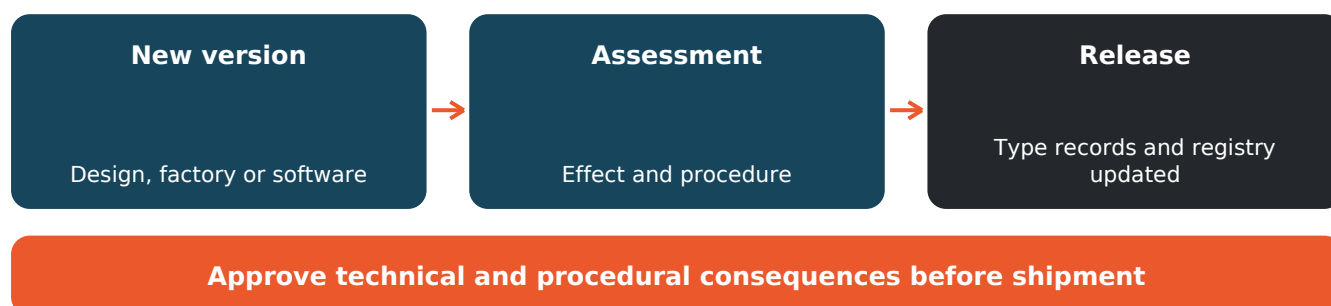
A universal annual cycle is unsuitable for every instrument. Operators must not independently extend prescribed legal verification intervals. Review calibration intervals against actual experience. Retain results as trends and watch increasing error. A satisfactory intermediate check does not automatically replace a due mandatory examination. Plan downtime and replacements to prevent continued use merely because of scheduling pressure. Changed measurement tasks require renewed review.

In practice

Maintain separate calibration, legal verification and maintenance dates.

Repair, seals and return to service

Assess interventions technically before renewed use.



Assessment area	Project implementation
Intervention	Type, date, parts, settings and accountable owner.
Protection	Seals, access and protected measurement parameters.
Method	Determine necessary examination under current provisions.
Result	Connect new configuration and actual examination.
Release	Permit use only after necessary completion.

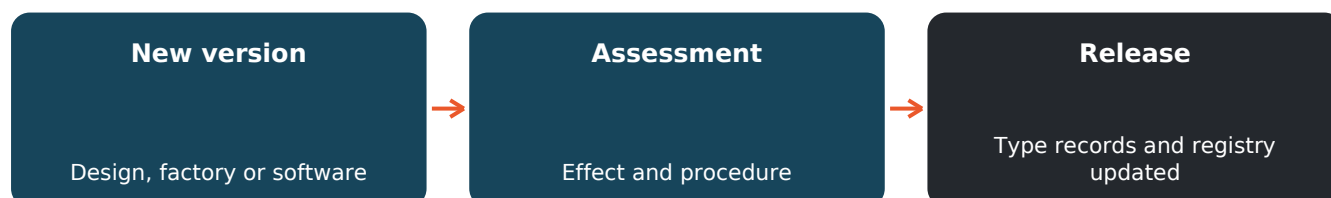
Do not release repaired equipment solely because its old examination is recent. Intervention may have changed measurement state. Current Russian Article 13 places in-service examinations, including after repair, within periodic verification; determine actual depth against the applicable method. Avoid the older universal claim that every repair legally entails initial verification. Other countries have their own provisions. Document damaged seals or readjustment and assess consequences technically.

In practice

Preserve old evidence and record the new state with its own examination event.

Changes to type, factory and software

Check approval scope before supplying a change.



Approve technical and procedural consequences before shipment

Assessment area	Project implementation
Design	Assess sensor, principle, materials and electronics.
Software	Review algorithm, firmware identifier, settings and protection.
Manufacture	Update site, process, final inspection and responsibility.
Name / holder	Track renaming, approval holder and authorised applicant.
Procedure	Handle procedure or interval amendments under the applicable route.
Release	Obtain decision on additional testing, registry amendment or new procedure.

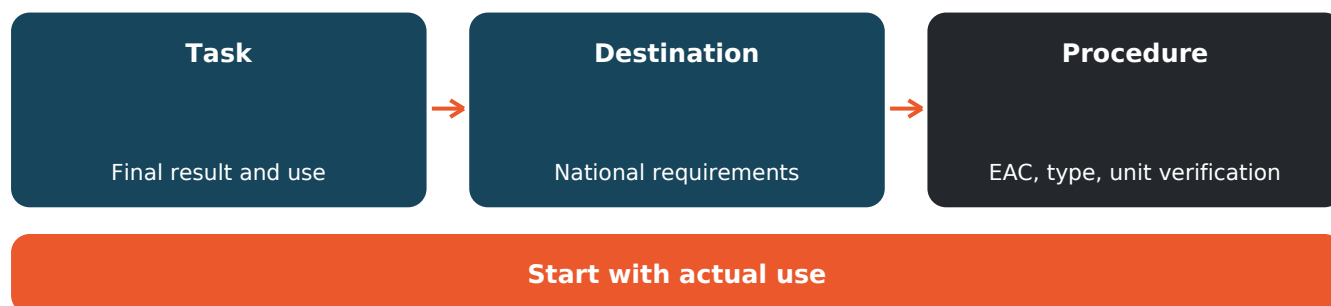
Even an equivalent replacement may alter performance or protection. Describe prior and proposed revisions and possible effects. Determine necessary technical and legal reassessment before supply. An existing registry number does not allow arbitrary expansion. Update the product matrix after approval. Preserve previous records as historical editions. Manufacturer, examiner and operator agree actual consequences before changes.

In practice

Do not supply a metrologically relevant change without documented assessment of required procedural consequences.

Case: pressure sensor before first use

Use determines necessary evidence.



Assessment area	Project implementation
Instrument	Fictional sensor: 0-10 bar, serial P-001.
Task A	Internal development test bench.
Task B	Measurement subject to mandatory legal requirements.
Plan	Separate calibration order and legal verification route.
Release	Match configuration, measurement chain and result to use.

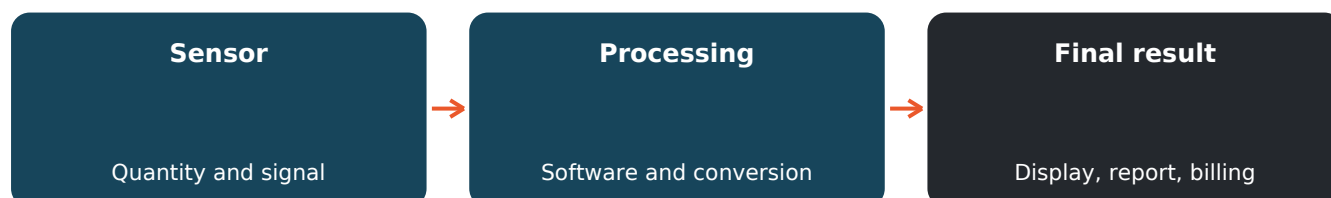
The manufacturer first asks about destination and task. For the internal bench, the customer defines points, required uncertainty and quality requirements. For the regulated task, also resolve national type and verification routes. An existing calibration certificate is not treated as automatic compliance. Both projects may use the same model while requiring different release files. Reassess later changes of use. Fictional inputs do not approve or verify an actual product.

In practice

The same model does not imply the same legal measurement task.

Case: flow measurement chain on site

Consider components alongside the used final result.



Document system boundary and result use expressly

Assessment area	Project implementation
System	Measuring tube, temperature probe, processor and output.
Use	Billing for supplied liquid quantity.
Identity	Serials, firmware and compensated units.
Assessment	Confirm eligible method and setup at destination.
Handover	Record examined system boundary and next due date.

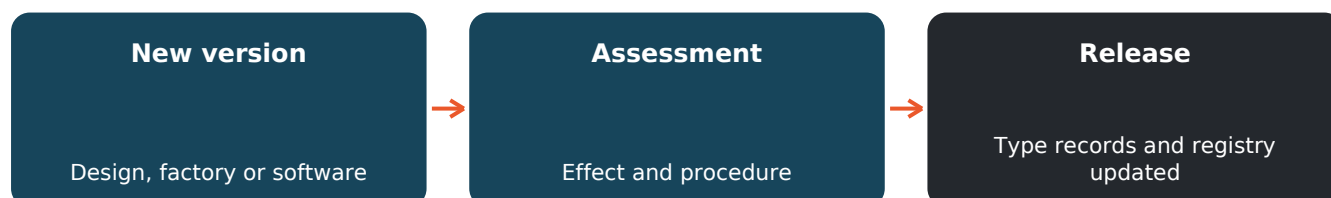
Billing uses a compensated final result. Calibration of the measuring tube alone therefore does not automatically establish the complete output. Define the boundary and resolve the national route. Plan site work with an eligible provider. Reconcile settings and conversion against approved records. Reassess approved configuration after firmware changes. This case illustrates planning rather than universal requirements for all flow systems.

In practice

The final contractual result determines the measurement chain to examine.

Case: negative result and corrective action

Failed examination: control cause, use and repeat work.



Approve technical and procedural consequences before shipment

Assessment area	Project implementation
Finding	One specified point fails its criterion.
Control	Block or clearly identify affected unit and use.
Cause	Investigate setup, unit, configuration and damage.
Action	Authorise repair / adjustment accountably.
Closure	Necessary repeat examination with new result.

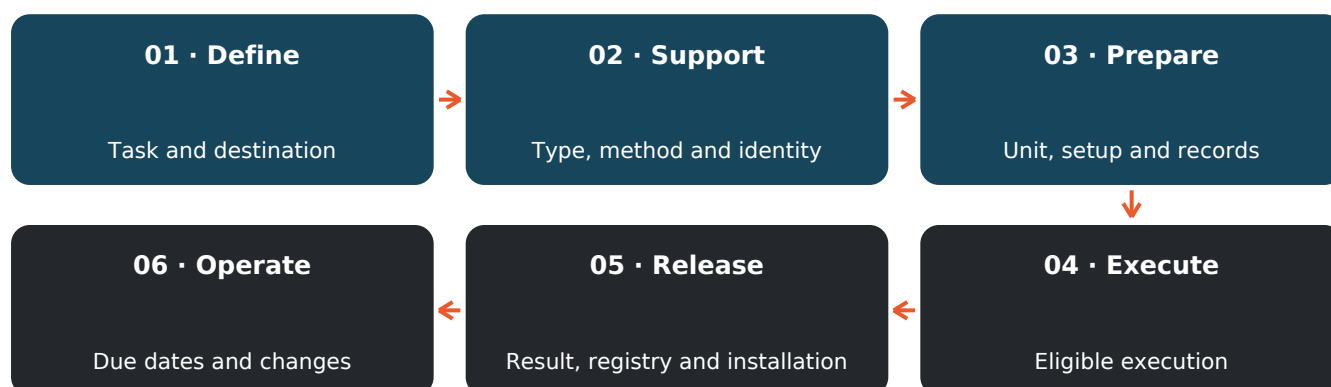
The provider reports actual findings. Manufacturers assess whether unsuitable configuration, defects or preparation caused the issue. Agree corrective action after that review. Preserve earlier data. Operators consider possible effects on previously performed measurements. Repeat examination follows the applicable method and is a separate event. A positive post-repair result does not retroactively alter the earlier negative finding.

In practice

Retain failure, action and new result as a connected history.

Costs, timing and quotation planning

Price unit services separately from any necessary type testing.



Assessment area	Project implementation
Quantity	Serials, channels, ranges and variants.
Preparation	Cleaning, accessories, adapters and record rework.
Assessment	Method, setup, laboratory time and site attendance.
Additional route	Separately plan missing type, EAC or recognition.
Allowance	Failure, repair and repeat examination.

This guide provides no universal price or guaranteed duration. Initial verification of eligible units differs from first approval of a new type. A calibration order for a few points also differs from full on-site system examination. Agree assumptions, quantity, output and additional costs. Include result submission and required records in scheduling. Do not automatically transfer prices from other metrological service pages to this work.

In practice

Quotations should identify prerequisites for execution.

Common mistakes and practical corrections

Resolve incorrect assumptions before testing and shipment.

Assessment area	Project implementation
"EAC is sufficient"	Release EAC and national instrument use separately.
"Russia covers all states"	Document destination, origin and recognition route.
"Calibration is poverka"	Order calibration or verification expressly.
"Type entry = unit verification"	Check the actual result for the same serial number.
"Software is irrelevant"	Link firmware, algorithm and parameters to the approved type.
"Expiry invalidates old units"	Check covered manufacturing period and current verification separately.

Further mistakes include overly broad model lists, unclear accuracy claims, missing installation limits and lost original reports. A verification document for another serial number does not cover the supplied unit. Decimal notation or unit differences can alter interpretation. Trace the new version after repair. On changing importers revisit record access, authorisations and eligible procedural roles. A complete model and serial-number matrix before shipment provides a useful cross-check.

In practice

Assign unresolved points to an owner and due date. A sales note alone is not technical release.

FAQs on initial calibration and poverka

Clear answers for enquiry, supply and operation.

Does every imported instrument require verification?

Import alone is insufficient for classification. Destination, task, instrument category and national rules determine the route.

Are public customers the sole criterion?

No. Private operators can perform regulated measurements. Actual use and its applicable requirements matter.

Is an EAC certificate sufficient?

EAC concerns applicable product conformity. Assess national metrological use and unit verification status separately.

Are paper and a mark always necessary?

In Russia, federal-fund information provides the central verification evidence. Additional marks, certificates or passport entries follow the applicable procedure and request.

Can calibration support poverka?

Results may be used under applicable conditions. A calibration certificate alone does not replace required legal verification.

How often is reassessment necessary?

Define legal verification intervals, calibration scheduling and maintenance separately. Repair and changes can trigger additional review.

Project and shipment release checklist

Worksheet · print and complete with the project dossier.

Check	Status / evidence
Task and commercially/legally used final result identified	_____
Destinations, operator and actual installation site confirmed	_____
Manufacturer, origin, factories and applicant resolved	_____
Type boundary, variants, ranges and error limits documented	_____
Software identifier, parameters and protection approved	_____
EAC applicability and required evidence completed	_____
National type status/recognition route confirmed for each country	_____
Type description and verification procedure available	_____
Serial numbers matched to required unit verification	_____
Registration of results and next due date checked	_____
Marking, passport and language editions released	_____
Installation, access, maintenance and changes planned	_____

Project: _____ Date: _____

Completed by: _____ Release: _____

Resolve open items explicitly

Assign each open item an owner, date and release criterion. Substantiate “not applicable” technically or legally. This worksheet supports project control and is not an official approval decision.

Enquiry form for your instrument project

Worksheet · for a technically reliable initial review.

Item	Your project information
Company / contact	_____
Manufacturer / factory / country of origin	_____
Models / product family	_____
Measurand / unit / principle	_____
Ranges / error limits / conditions	_____
Software / firmware / parameters	_____
Task / use of results	_____
Destinations / importer / operator	_____
Series / batch / unit / quantity	_____
Installation / fluid / pressure / Ex	_____
Existing approvals / test reports	_____
Samples / references / site access	_____
EAC status / required translations	_____
Target date / shipment date	_____

Attach data sheet, model matrix, instructions, complete existing reports, software description and any measuring-system diagram. State expressly whether you request EAC, national type approval, verification or calibration.

Enquire with AC Inorms

Email: info@ac-inorms.com

Telephone: +49 2161 990 497 0

Worksheet: unit and result matrix

Keep a separate record per unit and destination.

Field	Entry / evidence
Destination / task	_____
Instrument / model / serial	_____
Channel / range / units	_____
Software / configuration	_____
Service / legal effect	_____
Type status / procedural basis	_____
Method / edition / provider	_____
Date / result / report ID	_____
Registry / publication	_____
Mark / seal / passport entry	_____
Next date / owner	_____
Release / unresolved issues	_____

Allocation

Do not use another unit's result ID. Check serial and configuration before release.

Regulations archive and key terminology

Use technical regulations alongside national metrology sources.

Archive document	Relevance to instruments
TR CU 004/2011	Low voltage: rated voltage and scope.
TR CU 020/2011	Electromagnetic compatibility.
TR EAEU 037/2016	Hazardous substances in covered electrical/electronic products.
TR CU 010/2011	Machinery and installations by product function.
TR CU 012/2011	Equipment for explosive atmospheres.
TR CU 032/2013	Pressure equipment by actual design and category.

Archive texts provide a starting point. Check current amendments, standards lists and procedures against official sources. Russian Law No. 102-FZ is a national metrology basis, not an EAC regulation for all five states.

Term	Precise meaning
Initial calibration	First determination of measurement relationship and uncertainty.
Poverka	Legal verification of an individual instrument.
Type approval	Defined type and its conditions.
EAC	Product conformity under applicable TRs.
PAC / MPA	Common English type-approval terms.
Verification mark	National verification mark, not the EAC mark.

Sources and legal foundations

Linked foundations for technical and legal decisions.

[1] AC Inorms: initial calibration / poverka

Open source

[2] AC Inorms: regulations archive

Open source

[3] 102-FZ: legal text with 2026 effective provisions

Open source

[4] Rostest: terminology, preparation and examination types

Open source

[5] BIPM: JCGM 200:2012, VIM

Open source

[6] Rostest: verification and calibration

Open source

[7] Official publication: Order 2510/2020

Open source

[8] ILAC P10: metrological traceability

Open source

Research as of 14 October 2026. [3] reproduces the original law on a legal platform, rather than official publication. [7] and registry [14] were unavailable directly. Reconfirm current procedural amendments and actual unit records before execution.

Further sources and image credits

Linked foundations for technical and legal decisions.

[9] ILAC P14: uncertainty in calibration

[Open source](#)

[10] ILAC G8: decision rules

[Open source](#)

[11] ILAC G24 / OIML D10: calibration intervals

[Open source](#)

[12] OIML D31:2023: instrument software

[Open source](#)

[13] Rostest: accreditation records

[Open source](#)

[14] Arshin: verification results

[Open source](#)

[15] AC Inorms: metrological approval

[Open source](#)

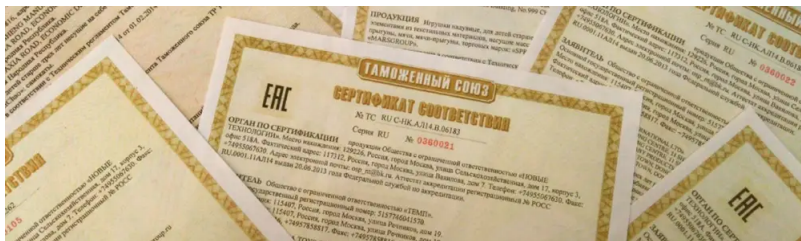
[16] BIPM: metrological publications

[Open source](#)

Images: AC Inorms cover illustration, poverka / initial calibration, and explanatory document image, ac-inorms.com. Diagrams, tables, templates and worked example are original working aids. No official verification mark or certificate is supplied as a template.

Your instrument project with AC Inorms

From a clear order to a traceable unit file.



Document illustration · not an official certificate · AC Inorms

AC Inorms supports project classification, coordination of competent providers, record planning and translation. For a reliable enquiry provide destination, task, model, serials, ranges, software and available evidence. These inputs support separate planning of calibration, verification, type approval and applicable EAC procedures. Actual execution and result accountability rest with the eligible performing provider.

AC Inorms GmbH

Nobelstraße 3/5 · 41189 Mönchengladbach · Germany

Telephone: **+49 2161 9904970**

Email: info@ac-inorms.com

Web: ac-inorms.com

For your initial enquiry

Provide the page 45 worksheet with datasheet, unit list, intended use and available evidence.