YOUR PARTNER IN SENSOR TECHNOLOGY

E+E ELEKTRONIK Ges.m.b.H.

E+E ELEKTRONIK GESELLSCHAFT M.B.H.

The Integrated Management System

Management System Handbook

THE INTEGRATED MANAGEMENT SYSTEM OF E+E ELEKTRONIK GES.M.B.H.

Management System Handbook

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This handbook is not subject to the company's amendment service.

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Table of Contents

Chapter 1

How is the Management System organized?

This chapter informs you about the descriptive structure of the Management System.

The following management handbook primarily represents the internal reference work for the comprehensive Management System of E+E Elektronik Ges.m.b.H. in Engerwitzdorf. The handbook should, however, also provide outsiders with an overview of the basic organization of the Management System and the way it works in order to build confidence that the qualitative demands will be met.

Who does what?

As an internal reference work, the contents of this handbook are primarily of importance for employees at management level who, by designing and putting into effect a suitable implementation and operational organization, ensure the quality standards of the company. This handbook answers the question: "WHO does WHAT?"

How is this handbook (MHB) organized?

Question -> Answer

This handbook is based on questions, which together with the appropriate answers, provide an overview of the entire management system of E+E Elektronik Ges.m.b.H.. This handbook forms the pinnacle of the system documentation which is expanded upon in more detail in **Procedural Instructions and Process Descriptions**[1)] (QSV´s and PB´s). The third and lowest level of documentation is formed by the various detailed instructions, which establish all the important preconditions for activities within the company.

DOCUMENTS

1) For further regulations refer to QSV QS-003 „Documentation„

About the Table of Contents

The Table of Contents forms a linkage between the questions and the page number on which the appropriate answers can be found.

How does one find further documentation?

FOOTNOTES

References to further system documents

Throughout the entire text there are footnotes on the margin, which provide a link to more detailed information on procedural instructions.

Documentary structure of the Management System

The documentation is organized in three levels as represented below.

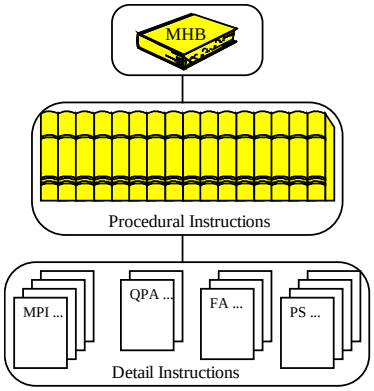

Illustration 1 displays this handbook (MHB) as the highest level of documentation with general overview information. The second level of the Procedural Instructions and Process Descriptions(QSV´s and PB´s) contains the organizational operational details and therefore forms the network of the management system with the intra-area and inter-area regulations. The Detail Instructions of the lowest level establish all the relevant implementation details of activities.

There is a clear presentation of the E+E Elektronik management processes attached to this handbook.

How are documents and data managed?

Central organization of the given documents and data

The organizational documents (MHB and QSV´s, PB´s and job descriptions) are organized electronically as far as possible and are accessible to the relevant employees via the computer system. For the Detail Instructions, an exclusively software-based management would not be practical and would result in a lower degree of acceptance among the enacting employees. This lowest level of documentation is therefore also managed through conventional documentary methods. The overall **Organization of Documentation**[2)] is managed by the QM Department in the form of paper, IT and external documents etc.

DOCUMENTS

[2)] On organization of documentation and records refer to QSV QS-003 „Documentation„

Regulations pertaining to the establishing of the required qualitative records are integrated into procedures of product and process development in order to guarantee the identification and traceability of products and, if necessary, the constituent materials.

Which regulatory systems are observed in the system?

The following standards, laws and regulatory systems are taken into account in the current edition of the Management System of E+E Elektronik:

- ÖNORM EN ISO 9000 -> Quality management systems - Principles and terminology
- ÖNORM EN ISO 9001 -> Quality management systems - Requirements
- ÖNORM EN ISO 9004 -> Quality management systems - Guidelines for the improvement of performance
- ÖNORM EN ISO 14001 -> Environmental management systems – specification with instructions for use
- ÖNORM EN ISO 19011 -> Guidelines for quality and/or environmental management systems auditing
- DIN EN ISO 10012 -> Requirements regarding the quality assurance of measuring equipment
- ASchG -> Austrian Employee Protection Law BGBl. No. 450/94
- VDA Volume 6 Part 1 -> Quality system audit - Material products
- ISO/TS 16949 -> Quality Systems Requirements
- ÖNORM EN ISO/IEC 17025 -> General requirements regarding the competence of test and calibration laboratories
- Directive 94/9/EG -> Requirements on devices in explosive domains (also known as ATEX 100a)
- ÖNORM EN ISO/IEC 80079-34 (former EN13980) -> Explosive domains – use of quality management systems

What is the importance of this Management Handbook for E+E Elektronik?

The following Management Handbook contains a clear overview of the comprehensive management system of E+E Elektronik Ges.m.b.H. with all the required references for the use of the system within the company. The contents are updated to reflect current organizational realities. Amendments are made only upon authorization by the management and included in all editions subject to the company's amendment service. This handbook serves as a binding document for the entire area and all employees of E+E Elektronik Ges.m.b.H.

J. Hartl *W. Timelthaler*

Dipl. Ing. Josef Hartl Dipl. Ing. Wolfgang Timelthaler

Management

Chapter 2

How does E+E Elektronik present itself to its partners?

The company history gives an overview of the development of the company at its premises in Engerwitzdorf.

Production for IBM as part of the state-owned VOEST ALPINE AG

1979 The Engerwitzdorf plant was built as part of the public sector VOEST ALPINE AG

1979 to **1995** Production line for thin film and assembling processes for several IBM locations

Beginning of independent sensor activities

1985 Start of sensor activities
Based on existing knowledge in thin film technology development work on temperature and humidity sensors was started.

1991 The first generation of humidity sensors was brought to market

Plant Engerwitzdorf came under private ownership – renaming of the company in E+E Elektronik Ges.m.b.H.
RSF Elektronik (Austrian company in sensor technology) bought E+E Elektronik

With ISO 9001-certificate no. 100 and TS16949 certificate no. 42 E+E Elektronik is among the forerunners in the use of management systems.

1993 The quality assurance system of E+E Elektronik was certified by the Austrian Association for the Certification of Quality Systems (ÖQS) in accordance with the conditions of ISO 9001.

1994 E+E Elektronik GmbH was acquired by Dr. Johannes Heidenhain GmbH, Traunreut, BRD, which is global market leader in linear and angular measuring systems.

1995 The company's activities have concentrated on the field of sensor technology exclusively with focus on humidity and air velocity measurement.

First technical office was founded

1998 The first external E+E sales office in Germany was founded

1999 The management system of E+E Elektronik was certified additionally in accordance with the automotive conditions of VDA 6.1.

Start of sales activities in China – Technical Office Beijing was founded

New building, Accreditation of calibration laboratory OEKD No. 23 according to EN45001 -> IEC 17025

2000 All thin film production areas moved to a new, modern building for sensor element production.

The calibration department of E+E was accredited according to EN 45001 (later ISO/IEC 17025) as calibration laboratory for humidity of air by the Federal Ministry for Economic Affairs and Labour within the framework of the ÖKD calibration service.

2002 The certification of the E+E management system according to EN ISO 14001 (environmental management) and ISO/TS 16949 (body of rules and regulations for automotive supply industry) which was an important step of extension of the automotive market activities.

2003 Start of Technical Office France

2004 Further development of the China activities – opening of Technical Office Shanghai

New measurement category CO_2

CO_2 concentration, which is another environmental measurement category, enlarged the product range of E+E

Designated Laboratory for humidity

2005 The E+E Elektronik maintains the Austrian national standard for humidity as a Designated Laboratory of the Federal Office of Metrology and Surveying (BEV). In connection with this designation the quality system of the calibration laboratory has been accepted by the European Collaboration in Measurement Standards (EURAMET).

2007 Opening of E+E Technical Office South Korea

Enlarging of buildings, additional technical offices in more countries

2008 Extension of production area systems and calibration laboratory

E+E improved its present on the Italian market by opening a sales office in Italy, near Milano.

2010 E+E Elektronik Ltd. USA started its activities

Designated Laboratory for velocity of air

2011 The OEKD calibration laboratory is extended for contact thermometry and air flow calibration. Additional E+E had been designated for maintaining the Austrian national standard of velocity of air.

How does the company define its position in the economy?

E+E Elektronik Ges.m.b.H,. Engerwitzdorf is a company of the Dr. Johannes Heidenhain GmbH. Sensor elements that have been developed at E+E are the basis for our products and systems. At present time the focus lays on the environment/process measurement categories humidity, air flow and CO_2. Thin film technology, calibration know how and application know how are the basis for our daily business. E+E Elektronik has become a renounced partner in industry and commerce due to the high and rapid adaptability to continually changing customer and market demands together with the high standards of quality. Customers and partners in the branches automotive, climate control and process engineering trust in E+E's products.

What are the leading ideas for the policy of E+E Elektronik

Our quality policy takes into account the following stakeholders:

Our quality policy is the guide to all our business dealings.
The continuous improvement and further development of all business aspects is part of the management strategy.

The customer is our raison d'être. Our motivation is the recognition and fulfilling of specific customer demands in a competent and reliable fashion with a view to establishing long-term partnerships.

For the owner, we want to be a future-oriented company which achieves good returns with its products and services in the field of sensor technology, and which, as such, forms an economically healthy element within the group of companies.

We want to ensure our competitiveness through supplier relations based on partnerships. We aspire, therefore, to long-term co-operations with reliable and competent suppliers from whom we expect products and services at optimal value for money.

Every employee should regard his or her responsibilities as an important contribution towards fulfilling the client's and owner's expectations. We want competent, committed and responsible employees whom we offer a long-term position within the company.

We want to be proud of ourselves. We want to contribute to society by our activities. In development and production we show concern for the environment and the resources in a responsible way and we apply an integrated environmental management system.

W. Timelthaler — *R. Simbrunner*

Management — For the employees

J. Hartl A. Bachl D. Steiner F. Cojocaru, Dr. Niessner
K. Brückler G. Giritzer Dr. H. Mitter A. Eliskases

Staff function and division managers

How are the leading ideas translated into policy?

Systematic realization of the quality- and environmental policy

The quality- and environmental policy forms the source of the following principles, which, in turn, form the basis for the establishment of quality objectives:

- Result
- Performance
- Production times
- Production yield
- Performance of the company processes
- Future-orientation

- Meeting delivery deadlines
- Customer loyalty
- Customer complaints

- Key suppliers
- Supplier complaints
- Keeping deadlines for additional purchases

- Employee satisfaction

- Energy expenditure
- Water usage, waste materials and emissions

How is the company organized?

The management designs the **organization chart**[3)] and puts it into effect. The organization plan is freely accessible to all employees. Every head of an organizational unit is responsible for ensuring that the standards for employees as defined by this MHB is sufficiently known to the members of staff and are taken into consideration when carrying out their duties.

The concept of job descriptions

Job descriptions define responsibilities, competences, cognizance, and job specifications. The management and subarea managers have clearly defined responsibilities concerning the guidance of the contents of job descriptions as well as the allocation of human resources.

DOCUMENTS

3) The current organizational plan is established in the document entitled EEORGx. A representation of the organizational structure is to be found in chapter 3.

Means and Personnel for the Management System

The staff function QM serves as an organizational support for all areas of the company.

The equipment and personnel requirements resulting from the management system are made available by the managing directors according to the planned procedures for the creation and occupation of positions. The necessary number of employees in all areas is completely or partly responsible for the quality management duties in accordance with job descriptions. An environmental representative handles the specific aspects of the environmental management system with professional competence. The appropriate equipment in the individual sub-areas is available to these employees. The employees of the QM Department, the environmental representative and the representative for Ex-devices are responsible for the implementation of the Management System down to the individual employee of the company, and are also responsible for rapid feedback to the relevant responsible person for management processes in the sub-departments. The continual development of the Management System is achieved through project meetings in which the Managing Director and the heads of all departments submit the various demands and expectations of customers, suppliers, the owner and the environment.

Overall Responsibility for the Management System

DOCUMENTS

4) Further details can be found in the Business Plan containing established rules for the management

One member of the management of E+E Elektronik is responsible for the **maintenance of the Management System**[4]. The QM Department supports the Managing Director and, as such, organizes and monitors the continuous implementation of detailed duties in the individual areas with the support of the employees from these areas.

Evaluation of the Management System

At least once a year an evaluation of the Management System is to be conducted by the Managing Director. This shall form the basis for establishing medium- and long-term goals and measures. The information mentioned below shall serve as the basis for evaluation.

- Reports on the set targets -> Support of the company philosophy, efficiency of the company processes
- Reports on the customer feedback -> valuation of customer satisfaction
- Internal Audits -> Acceptance and realization of the basic principles of quality
- Improvement measures -> Practical application of the improvement measures

Chapter 3

Who is responsible for what?

The unambiguous allocation of activities and processes to departments and members of staff is one of the basic elements of our system.

DOCUMENTS

5) Job descriptions and staff allocation are registered in an up-to-date listing

Job descriptions[5] permit workable specifications of tasks, cognizance and job specifications. Formal responsibility of those divisions/people who can contribute most to an optimal process flow is vitally important. The organization chart and job descriptions display clear and precise information and serve as a basic organization model. They do not fully provide information on the context of effective teamwork nor help to organize those.

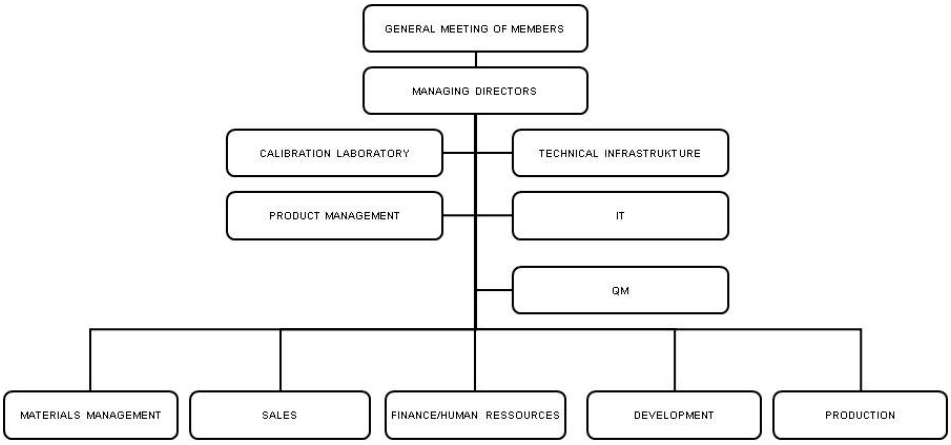

Illustration 2 represents the basic organizational structure of E+E Elektronik Ges.m.b.H.

Management

Strategies in future-oriented Markets

The management of E+E Elektronik defines medium- and long-run strategies and objectives and evaluates the results, which it has to present and defend at the company general meeting. It examines all management targets in MHB, QSVs and PBs and monitors the handling of measures resulting from deviations at internal system audits.

Staff function Calibration Laboratory

Akkreditation Austria, ÖKD, Designated Laboratory

The accredited Calibration Laboratory ensures competent, independent and acknowledged measuring competence in the extent of accreditation. In addition the calibration laboratory as a Designated Laboratory of the National Metrology Institute of Austria (BEV) provides the national standard for humidity and velocity of air. The authorization as a designated laboratory requires membership with EURAMET, which, on the other hand, supports the integration within the international metrology organization.

Staff function Product Management

Product portfolio, marketing, after sales service

The product management carries out systematically observation of the market and optimal communication on the interfaces sales – development – production in case of development of new products or product changes. The organization of the relevant clarifications of feasibility within E+E and technical after sales service belong to the responsibilities of this department, too. Advertising, preparing of trade fair exhibitions and maintenance of product information and the website http://www.epluse.com/ are additional tasks.

Staff function Quality Management (QM)

Support, optimization, product analysis

Apart from structured advancement of the management system, this department supports all other business areas in the use of their correspondent regulations. It is involved in test planning and supports the process optimization and simplification of the whole company.
E+E Elektronik has had no outsourced processes. In case of outsourced processes in future the staff function Quality Management has the responsibility to consider such processes within the management system.

Staff function IT

Support, optimization

As an indispensable tool for efficient working processes with all details of IT-organization of the local network, central database structures, ERP-software, office applications and development of software and databases the belongs to the scope of functions of this staff function.

Staff function Technical Infrastructure

Looking ahead, sensible improvisation

In addition to the procurement, organization and maintenance of the expensive technical infrastructure of E+E Elektronik, safety engineering also forms an element of the responsibilities of the staff function Technical Infrastructure.

Materials Management Division

Reliable Supply of high quality purchased products

The focus of the Materials management department is on punctual procurement of necessary production material and long-term security regarding important raw material of strategic importance. Key suppliers from different industries are selected carefully and communicated with on a basis of fair partnership in order to be able to supply our production lines with material of that quality required for our products. The division consists of the departments purchasing and stock control which is responsible for packaging and shipping of our products.

Sales Division

Customer support in the area of task assignment

The sales division ensures:

- A comprehensive investigation of customer/market demand and expectations
- Competent technical advice and assistance of end customers, Technical Offices, subsidiaries and distributors

Finance/Human Resource Division

Financial management and controlling;

Focus on employees

The division Finance/Human Resource is assigned to the following functions: Financial accounting, accounts payable, accounts receivable, dunning, controlling. The Human Resource Department is dedicated to the issue of personnel administration as well as recruiting, personnel training, development and marketing. It is also responsible for building up and maintaining efficient internal information.

Development Division

Not being deterred by the apparently impossible

In the department of Development Sensor Elements of the division Development all detailed specifications of sensor elements and associated manufacturing processes are developed and qualified. Expert knowledge is essential for numerous processes at the limit of the technologically possible.

Intelligent solutions combined with optimal economic efficiency

In the department Development Systems engineers design electronic circuitries which – by optimally using the properties of the sensor elements – convert the measured physical quantities into standardized or customer specific electrical signals at best price-performance-ratios.

By carefully taking into account the customer/market requirements as well as the production possibilities transmitters and similar systems are developed as applicable products and delivered as engineering samples if necessary.

Top level know-how ensures product innovation

The department Predevelopment/Testlab is the carrier of know how concerning sensor technology within the company. It develops this technology further, taking into account market requirements and strategic

objectives. Main tasks of the department are to develop new sensor techniques and measuring concepts. The Testlab of this department provides characterization and competent assessment of product test results within E+E Elektronik.

Production Division

Controlling complex production processes

In the department of Sensor Elements Production of the division Production all detailed specifications of sensor elements and associated manufacturing processes are developed and qualified. Expert knowledge is essential for numerous processes at the limit of the technologically possible. With the help of production logistics adapted accordingly and of qualified employees, the same division ensures the production of sensor elements on schedule. The production control is especially challenged by the product immanent and technologically hardly controllable steps of production for many product variations with fluctuant lead times and yield. An important task of this department is optimizing of production processes. The production is responsible for approving the admittance for delivery of qualified products and for the corresponding records.

Order-related production with wide product variety

In the Systems Production department of the division qualified employees and engineers produce measuring transducers and special devices for various applications by using E+E-sensor elements. Strongly customer orientated manufacturing procedures with many product variations and various volumes are a challenge for flexible production. A special process engineering crew develops and optimizes the production processes and equipment in cooperation with product development departments.

The production equipment engineering department consists of maintenance and an automation group including development of equipment control software and provides services to all divisions of the company.

Chapter 4

What are the advantages of the integrated management system?

The Management System is intended to be a practically applicable management tool for directing the company and must not, even in part, become an end in itself.

Concise and comprehensible documents, produced in conjunction with their users, lead to and ensure the greatest possible level of acceptance

The most important elements of a useful management system are carefully attuned to one another and set consistent "rules of play" which, in the form of this handbook and as continual procedural, process descriptions and detailed instructions, form the network of the system. Accepted regulations can only be compiled and adhered to in conjunction with the co-operation of technicians, management and the employees involved in their implementation. Practical and unbureaucratic system documents contain only that information which is not passed on through training alone and which cannot be constantly used. In addition, the Management System documentation also contains comprehensible descriptions of the inter-working of the company's divisions and processes, and thereby simplifies the transparent documentary evidence relating to certification procedures.

What advantages does the management system offer our clients?

The system descriptions serve to clearly define the activities within the company and also regulate external relationships particularly those with our clients.
If an important element of a client's requirements is missing or is not unambiguously described, it inevitably leads to queries or incorrect deliveries. This is inconvenient to both parties and is, therefore, to be avoided because it prevents the efficient use of time and resources and thus does not serve the common interest.

DOCUMENTS

6) For regulations relating to customer care activities refer to QSV VT-001 "Sales" and to QSV KA-001 "Calibration department"

Recognized internal procedures and responsibilities and the like at the **client-interface**[6] simplify the understanding necessary for the implementation processes. They enable practical instructions for improvement aimed at meeting the client's needs, which, in a specific form, possibly occur for the first time and to which we want to react rapidly, accurately and in a similar fashion in future.

The provision of tested product and use instructions as well as monitoring the products behavior when in use along with a comparison to other companies, are achieved through competent customer and dealer representation and with the earliest possible consideration of client's and market's information in the product's development.

What effect does the Management System have on the management of the company?

Team-oriented company management

The management system of E+E Elektronik in terms of procedural instructions primarily answers the question: "HOW and with WHICH MEANS are challenges to be met?"

The collective effect of the continually updated regulations is intended to ensure that all the business processes are planned purposefully and operate with efficient project and procedural management. To this end, expert and committed employees with an understanding of the complete process are required, and hierarchical structures and rules are kept to the absolute minimum.

What influence does the Management System have on the co-operation of the divisions?

Priority is given to the overall optimization of the company's performance in the interests of securing the future of the plant. Particularly in the existing product and market segment, the greatest possible flexibility is required in each individual area of the company's operations in order to support the production processes. Information and decision-making by the management extending over all areas of the business are correspondingly costly and yet important.

How is quality planning conducted?

Planning ahead is integrated task-specifically into all areas

Quality planning is related to product groups and its documentation is strictly based on the principle of value added for the company. Accordingly it either uses the formalism of control plans or is integrated into the detailed working instructions. The activities of the Quality Planning Department (establishing and ensuring the qualitative demands of products, contracts and quality management) are, for all other products, integrated in the appropriate management documents in the following ways.

Requirements of products and contracts

The systematic investigation, establishment and passing on of product and contractual requirements is dealt with primarily by the Sales Department during the phases of marketability and meeting the client's needs, and is laid down in the appropriate Sales Department procedural regulations.

Requirements of subcontractors

Regulations regarding supplier qualifications and supplier evaluations are laid down in the procedural instructions of the Production Department and in the related detailed instructions.

Documentary and recording requirements

The MHB and QSV „Documentation" contains detailed regulations relating to securing pertinent **Documentation**[7] of products, processes and activities. This regulates to what degree and by whom documentation is produced and updated. Furthermore, this documentation contains targets for the establishment, use and evaluation of quality records.

DOCUMENTS

7) The references to further documentation can be found in this handbook under the appropriate heading.

Requirements of Measuring Equipment

The investigation of the requirements of the measuring equipment is laid down in the QSV "Test equipment". The procedure for monitoring the measuring equipment is laid down in its own documentation to enable inspection of the testing methods.

The **Calibration Department**[8] incorporated into the company provides independent and direct traceability to national standards for the accredited measuring quantities for E+E Elektronik as well as for external customers.

DOCUMENTS

8) The quality management system of the calibration department is described in a special handbook (Mhbkeuex) and in accompanying detailed instructions.

Testing Requirements

The general establishment of the required tests is documented in the most practical way for E+E Elektronik, namely in the QSV "Tests", as well as the product emphasis in the QSV "Development Systems" and the process emphasis in the QSV "Development Sensor Elements". Product specific requirements for quality tests, testing equipment and other controlling methods are to be found either in the flow-diagrams and individual test instructions or in a distributed form in the working- and testing instructions. The QM Department is involved in test planning within the product realization phase.

Quality management requirements

Procedural optimizations are attained by adjustments in the management system

Adjustments to the Management System necessary to keep it up to date are made in accordance with the department specific regulations and under the responsibility of the departmental head (generally the holder of the QSV) by every user of the documents (followers of the regulations). When regulations span more than one department or when revised quality system requirements stem from customers or industry qualitative standards, the requirements of the Management System will be monitored by the QM Department and the regulations appropriately updated.

Environmental management and employee protection is incorporated into the Management System

Employee protection requirements

Regulations deriving from the requirements of the Austrian Employee Protection Law (ArbeitnehmerInnenschutzgesetz) are integrated into all levels of the system documentation. Every user of the documents makes in accordance with the department specific regulations and under the responsibility of the holder of the QSV and in the form of amendment requirements adjustments to the Management System necessary to keep it up to date. When regulations concern more than one department or in case of legal changes, the safety requirements of the Management System will be monitored by the responsible person for employee safety and updated accordingly.

Environmental management requirements

Environmental management system requirements are recorded by an environmental representative and kept up to date in coordination with the department manager in charge. More information on the subject "environmental management system" is contained in chapter 6.

Requirements for products for use in explosive environments

Requirements for products which are designed for use in explosive environments (Ex-products) are considered by an Ex-Representative who sets in place procedures for product development, purchasing and manufacturing according applicable management system requirements.

Chapter 5

Of what importance are the resources to our clients?

An optimally planned utilization of all available and necessary resources is a special challenge for innovative and flexible companies.

In order to satisfy the demands of clients and the market, so-called supporting processes within the company are as equally systematically observed as those in the product manufacturing processes. Although, from a client's point of view, these activities occur in the background, they are often of central importance to the quality of our products and services.

How do we ensure the competence of our employees?

DOCUMENTS

9) For further descriptions refer to QSV PW-001 „Human Resources„

Only competent and motivated employees and management setting an example to the staff ensure the long-term success of the company!

The management of E+E Elektronik ensures high levels of relevant education among its employees through established regulations for **education and training**[9]. This is constantly remarked upon by clients as being an outstanding company characteristic and is underpinned by the following diverse list on the subject.

Regulations regarding workplace training apply to every employee who works directly with the product in the Manufacturing Department ensuring that only qualified members of staff carry out and supervise their appropriate activities and processes. Which knowledge is important for front-line employees", "indirect employees" working in the areas of development and manufacturing , specialists in the commercial and administrative fields and for members of the management is described in detailed instructions of the management system.

How are economic aspects taken into consideration?

Strategic business planning and economic management measures

The partnerships formed between the company and the owner, clients and suppliers are based on common interests, which can only be maintained in the long run if the economic business strategy is balanced consistently with all other strategic orientations. Through strategic business planning and state of the art integrated software for **financial accountancy**[10], debit and credit accounting as well as the management of materials and the fulfillment of contracts, the relevant up to date analyses of results and costs whenever needed are used appropriately by the management and, in applicable cases, departmental heads for the economic management of the company. In addition, the cost of errors can easily be traced back to the product groups.

DOCUMENTS

10) For further detail on accounting refer to QSV RE-001 „Accounting„

How is IT used as a tool?

The appropriate software is kept up to date not only for the benefit of the economic management of the company. A local network having many workstations and IT-devices serves as an efficient communication medium and a secure data management system. Alongside the optimally maintained standard software, we also have largely self-developed applications, which are a precondition for the management of complex sensor manufacturing with an expanding range of products and increasing number of pieces. In the **IT**[11] field, decisions relating to investment and updates take into particular consideration the relationship between technical feasibility and economic utility.

DOCUMENTS

11) For further details on rules for the use of IT refer to QSV QS-009 „IT„

Of what importance is the measuring equipment?

As a manufacturer of sensor elements and transmitters for industrial measurement technology, climate technology, automotive supply industry etc., E+E Elektronik has, since starting to produce sensor elements, paid particular attention to the most competent in house measuring technology. Terminological definitions and set targets are used in accordance with those references mentioned in Chapter 1 above. The **testing equipment monitoring**[12] systems used by the responsible QM Department naturally contain, in addition to the purpose-specific inspection and calibration of the measuring and testing equipment, also problem-solving for possibly inaccurately measured products with compulsory repeated measurements and, when necessary, assessments of the risks involved made by the management.

DOCUMENTS

12) For further details on the testing system refer to QSV QS-006 „Monitoring of testing equipment„

How is the adequacy of the equipment ensured?

DOCUMENTS

13) The maintenance of equipment is laid down in PB „Production equipment engineering„

DOCUMENTS

14) For information on the set targets for infrastructure refer to QSV PS-001 „Technical Infrastructure„

The required equipment for development, manufacturing and testing is made available on the basis of manufacturing requirements. Due to the special nature of the product technology, suitable equipment often is not available on the market. In general, related technological machinery requires extensive modification or the machinery must be developed in-house. In addition to the complex development process, particular attention is paid to the **monitoring and maintenance**[13] of these special machines and systems and the **working conditions**[14] they require. The responsible technicians in the Production Equipment Engineering Department take care of the procurement of spare parts, alleviation of defects, preventative maintenance and the subsequent re-operation in accordance with laid- down regulations to ensure a high degree of equipment availability and, in the case of a breakdown, the fastest possible repair.

A separate automation group and a group of software developers support the development and construction of special equipment for manufacturing and testing of products.

Chapter 6

How are environmental aspects taken into account?

We think of the preservation of our environment not as an annoying duty, but instead as a basic responsibility for our generations to come.

For a comprehensive and systematic consideration of various aspects of environmental protection and for considerate consumption and use of materials, accepted guidelines for environmental management are also included in the integrated management system of E+E Elektronik.

How is the environmental management organized?

On the basis of the rules for environmental management mentioned in Chapter 1, the regulations that are relevant to the environment are included in a practical way in the various chapters of this management handbook.
For the support of regulations specific to the environment, an environmental representative is defined. Among other things, this representative supports all concerned branches of the company for the appropriate construction, update, and application of standards relative to the environmental management system. Comprehensive **Environmental regulations**[27] are a compulsory document for the realization of the corresponding content.

The regulations required for the practical completion of the environmental management system are integrated to the widest extent possible in the various standard documents of the management system. Where incorporation into existing documents is not possible or does not appear to be practical for the applicant, additional documents, forms, reports, etc. are used in order to cover all appropriate aspects of the environmental policy.

DOCUMENTS

27) For details on converting environmental aspects, see QSV UM-001 "Environmental Management"

What environmental policy does E+E Elektronik use as a guideline?

The environmental declaration documents the responsibility of the management for our environment today and in the future

From the contents of the company model and directives (see Chapter 2), the following environmental guidelines, which are in accordance with the environmental guidelines of the entire Heidenhain concern, apply to the environmental management of E+E Elektronik.

Responsible handling of the environment helps to guarantee the future of the company

1. E+E Elektronik strives for constant improvement in environmental protection relative to its burden on the environment, as well as to its consumption of resources and energy.

2. E+E Elektronik tries to achieve a higher standard for environmental protection than that required by law.

3. E+E Elektronik is committed to eliminating possible strains on the environment beginning in the concept phases for products and production.

4. E+E Elektronik commits itself to maintaining safety devices and organizational means that are always state of the art.

5. E+E Elektronik tests, monitors and cares for the effects of its business activity on the environment.

6. E+E Elektronik guarantees the implementation of the environmental policy through the environmental management system both in technology and organization.

7. E+E Elektronik teaches and informs its staff in order to develop its environmental awareness inside and outside its operation.

8. E+E Elektronik also informs and motivates its contracting partners towards environmentally aware thoughts and actions.

9. E+E Elektronik endeavors to provide an unbroken flow of information with authorities within the framework of a cooperative relationship.

10. E+E Elektronik informs customers and the general public about the environmental aspects of its business and products.

What benefits result from systematic environmental management?

Legal safety and confidence of the society

The systematic environmental management in our modern production company is justified not only by the fulfillment of appropriate customer requirements but also through the accepted certification management relative to following applicable legal and normative requirements. In addition, through transparent reporting and objective-oriented improvements, we achieve economic advantages and general environmental motivation for our staff, which is also effective beyond their field of work.

The established emergency provisions in the environmental management system are applied beyond the central environmental aspects and are used for considering possible problematic situations for the company in the future and are therefore useful for corresponding emergency planning.

Chapter 7

How are clients' wishes met with respect to the supply of a product?

We want to convince our clients by attempting to fully appreciate their requirements and expectations, by thoroughly clarifying the possibilities of realization, by giving a serious commitment and by reliably fulfilling this commitment.

The E+E Elektronik Sales Department is the first point of contact for our clients. This is where all related questions are dealt with and our sales team is happy to supply clients and other interested parties in a competent fashion with comprehensive product information and expert user-support.

Address: **E+E Elektronik Ges.m.b.H.**
Head Quarters
Langwiesen 7
A-4209 Engerwitzdorf
Austria

Telephone: **+43-7235-605-0** **Fax:** **+43-7235-605-8**
E-Mail: **info@epluse.at**
Internet: **http://www.epluse.com**

Good co-operation with many competent business partners ensures a broad market presence

In Germany a specialized technical office is available to existing clients and for enquiries:

Address: **E+E Elektronik Ges.m.b.H.**
Technical Office, Germany
Schöne Aussicht 8c/1
D-61384 Bad Homburg
Germany

Telephone: **+49-6172-138 81 0** **Fax:** **+49-6172-138 81 26**
E-Mail: **info@ee-elektronik.de**
Internet: **http://www.ee-elektronik.de/**

In China please contact one of our local technical offices:

Address: **E+E Elektronik Beijing Representative Office**
B0820, Hui Bin Office Building, No. 8,
Bei Chen Dong St., Chao Yang District,
Beijing 100101, P.R. China

Telephone: **+86 10 84992361** **Fax: +86 10 84992363**
+86 10 84992362
E-Mail: **info@epluse.cn**

Address: **E+E SENSOR TECHNOLOGY (SHANGHAI) CO., LTD**
Rm. 805, Building No.1088,
Xiang Yin Road, Yang Pu District,
200433 Shanghai, P.R. China

Telephone: **+86 21 6117 6129** **Fax: +86 21 6040 6109**
E-Mail: **info@epluse.cn**

In France please contact our local branch office:

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Le Norly III
136 chemin du Moulin Caron
F- 69130 Ecully

Telephone: **+33 4 74 72 35 82** **Fax: +33 4 78 33 44 39**
Mobile: **+33 6 78 95 00 48**
E-Mail: **info@epluse.fr**
Internet: **http://www.epluse.fr**

Korea is served by our local branch office:

Address: **E+E Korea Ltd.**
2nd floor Byoelgwan,
333-11 Sangdaewondong, Jungwongu
462-120 Seongnamsi (ROK)

Telephone: **+82 31 7326050** **Fax: +82 31 7326050**
E-Mail: **info@epluse.co.kr**

In Italy please contact our local branch office:

Address: **E+E Elektronik Italia S.r.l.**
Via Pontida 1
I- 20025 Legnano (MI)

Telephone: **+39 0331 177 31 02** **Fax: +39 0331 177 31 03**
E-Mail: **info@epluse.it**
Internet: **http://www.epluse.com**

In the USA please contact our local branch office:

Address: **E+E Elektronik Corp.**
124 Grove Street; Suite 225
Franklin, MA 02038

Telephone: **+ 1 508 530 3068** **Fax: +1 508 346 3798**
E-Mail: **gleighton@epluse.com**
Internet: **http://www.epluse-usa.com**

Further information about dealers and worldwide distributors is available on our Internet web site.

How are offers calculated?

In order to comply with our basic principles, potential clients must receive an **offer**[15] not only rapidly and in full, but it must also be appropriately discussed within the company beforehand. The following table is intended to emphasize our diligence already in the offering phase despite our commitment to the shortest possible reaction times.

DOCUMENTS

15) For a description of our processing of offers and orders refer to QSV VT-001 „Sales"

Activity	Remarks	Concerned departments
Receipt of the request		Sales
Clarify the technical and commercial feasibility	Not necessary for previously qualified products	Sales, Development, Production, QM
Clarify the dead-line feasibility		Sales, Production, Calibration Laboratory
Draw up offer		Sales, Management

How are commissions fulfilled?

We take great pleasure in being able to fulfill commissions on the basis of a customer's order after a thorough discussion of the product requirements or as the result of having made a suitable **order**[11]. Details of the commission, which were not sufficiently established at the time of the offer or which for other reasons remained unclear, are clarified before the client is offered the binding contractual confirmation. Exact delivery time, packing and delivery details and the logistical handling of any separately ordered components are typical examples.

DOCUMENTS

16) For details on set targets relating to planning, manufacturing control and dispatch refer to process descriptions, QSV PR-001„Production Sensor Elements„ and QSV FS-001 „Systems Production“

DOCUMENTS

17) Instructions for stock keeping and dispatch according to QSV EK-001 „Materials Management“

Activity	Remarks	Concerned departments
Prepare the contract of sale with the desired delivery time	In ERP-system	Sales
Clarify unresolved points	As required	Sales and specialist areas
Check and organize availability of the required production materials		Scheduling, Purchasing
If possible, adhere to the client's preferred delivery date	Commission planning, Capacity planning, **Manufacturing control**[16]	Production, Sales, Client
Confirm delivery date	In ERP-system	Production, Calibration Laboratory
Contract confirmation	Attention paid to keeping the period of time prior to the contract confirmation as short as possible	Sales
Delivery[17]	List of dispatch procedures in ERP-system	Purchasing, Sales

Chapter 8

How is product development managed?

In sensor technology product design and procedural layout are closely linked to one another. Only the ability to pay equal attention to both aspects from the outset ensures high quality products.

Product developments are introduced by the management in response to market needs or the demands of clients. Depending on the emphasis of the developmental activity, the project will be placed under the authority of either Sensor Elements Development, Predevelopment/Testlab or Electronic Development departments. When developing sensor elements the Process development is directly integrated into the design of the product. When developing transmitters a specific and independent process development project is generally used for the manufacturing processes.

The ability to independently develop every detail relating to products and processes is the clearest evidence of comprehensive competence.

What development projects are there?

In order to establish basic organization, studies are conducted which serve to establish defined key questions mainly with regard to element technology. Development projects, which have a qualified product as their goal largely, follow the classical model of a development process, but the establishment of the sought-after goals can often occur only at an advanced stage of the development process after procedural dry runs and any iterative agreement with the client. Product changes, however, occur due to defined demands and are, therefore, effected through a uniform process. The realization of the product commonly necessitates the development of complicated manufacturing processes and software far exceeding normal production and therefore to a large extent is handled in accordance with the regulations applying to product development.

Which particular points are considered during development?

During the **development**[18] of products, the technicians involved consider aspects of product safety, the establishment of the necessary ability to trace the manufacturing materials and the production steps, and the use of the most environmentally tolerant materials in addition to the most cost-effective realization of the product. Appropriate statistical analysis of measurement results and, if necessary, investigations of the efficiency of processes are very important in all areas. In addition, it is important that attention is paid to factors of employee safety during the process development phase and through the involvement of the appropriate experts and the employees concerned.

DOCUMENTS

[18] Further targets for product and process development are contained in QSV FE-001 „Predevelopment/Testlab" and in the process descriptions.

What does tested development activity mean?

In order to ensure the quality of the complex developmental duties, the following **Checkpoints**[19] are included in scheduled development time-scales of E+E Elektronik, which demand systematic scrutiny of the concepts and efforts to find solutions at sensible time intervals.

- Design inputs -> Agreements between the Development Department and the client regarding the desired developmental results
- Product release -> Presentation of the product including detailed parameters to allow further measures concerning purchase, volume manufacturing and marketing in order to be able to develop all steps parallel to each other
- Qualification testing -> Test of fulfillment of all the statutory requirements and the effectiveness requirements of the client and the Production Department with approval granted by the QM Department

DOCUMENTS

[19] Regulations on testing are laid-down in QSV QS-005 „Tests".

Chapter 9

How are Materials and Services purchased?

Lasting procurement reliability of purchased products and partnership-based relations with our key -suppliers achieve services.

Because the roles of customer and supplier continually change in everyday business life, good contacts are equally important on both sides. The more this develops, the more smoothly our goal can be reached; namely satisfying our customers.

How are suppliers selected?

Despite the wide variety of our own products we endeavor to maintain a comprehensive number of key suppliers to provide the necessary raw materials and services. The role of the **Purchasing Department**[20] is, therefore, integrated into the Purchasing together with Stock Control. Depending on the technology involved and in accordance with the company's policy, E+E Elektronik acquires its product relevant component parts and services from as few simultaneous suppliers as possible. The emphasis is placed upon the careful selection of the suitable suppliers with whom a long-term business relationship is subsequently built up. In addition to QM, the development departments are also involved in the selection process through their targets and evaluations of samples as appropriate.

DOCUMENTS

20) For further information regarding procurement refer to process descriptions and QSV EK-001 „Materials Management„

How is the quality of the supplied products ensured?

Depending on how supply deficiencies occur and their effect on the manufacturing or the end product, an adequate number of inspections of goods received are set up within the area of responsibility of the Production Department. On the grounds of overall economic considerations, particular attention is paid to achieving sufficient supplier ability. Until this status is reached or for critical supplied products, the quality of the supplied materials is checked by means of appropriate and effective inspections at the point of delivery and the appropriate measures put in place to ensure the quality of E+E Elektronik's end products. With software support we ensure that supplied products subject to inspection on receipt are only entered as stock after they

have obtained the appropriate inspection approval. By means of a goods received symbol, an appropriately accurate allocation of the product-related materials and components is ensured according to the established regulations for product traceability, so that any possible deficiencies later noticed can be reliably dealt with.

How are good supplier relations achieved?

Selected suppliers as partners with shared interests are important for long-term co-operation.

A simple and practical system of evaluating suppliers provides information on those delivery criteria, which are important for E+E Elektronik. Delivery times, the accuracy of the quantities supplied and the product quality in addition to an evaluation of the supplier's flexibility are all examples of the factors considered when drawing up these criteria. The process of supplier evaluation used is laid out so flexibly that only the relevant suppliers are considered and, through this very practical focusing, the administration of the appropriate supplier information and co-ordination is kept to a minimum.

Chapter 10

How are products manufactured?

Flexible manufacturing control as well as trained and committed employees is the preconditions for achieving short delivery times on standard products as well as specialized product variations.

Realistic estimates of demand from clients lead to ensured delivery performance by E+E Elektronik

Through our own manufacturing control methods and planning ahead, the appropriate manufacturing commissions or batch sizes are planned into the production schedule in response to the client's requirements. Varying levels of customer demand or run-ups of mass-produced products require the Production Department to have realistic planning figures and to coordinate with the client in time as a precondition for the timely preparation of personnel and production capacity levels.

Which methods of manufacturing management are employed?

The **Scheduling**[21] section of the Element Production and System Production Department is responsible for organizing the necessary production volumes per product type. For the production of transmitters and systems, plans are co-ordinated with the Sales Department with respect to the appropriate delivery date prior to confirmation being given to the client and produced by way of internal production orders by the delivery date. Due to the longer throughput times and quantities internal orders are not practical in the element production line. In this area the control of production levels is achieved through batch units, which are controlled throughout the whole manufacturing process on the basis of demand.

DOCUMENTS

21) In the process description, procedural instructions PR-001 „Sensor Element Production and FS-001 „Systems Production“ detailed targets are set for all aspects of manufacturing control and management.

How is production quality management conducted?

Qualitative data relating to the finished products is collected at numerous points during the manufacturing process. This is achieved mainly by means of automatic data storage, by measuring equipment and an extensive database system developed internally. Through compact evaluation of the qualitative data, control measures are introduced by the Production, Process Development and QM Departments when necessary. The weekly Production

Department meetings are a central management instrument for the Production Department and are conducted according to an established protocol. Employees in the QM Department provide the Production and Process Development departments with expert quality-related technical support as determined by their particular areas of responsibility.

Which inspections are used in the production process?

Intelligent combinations of self-testing, sorting measurements and inspection-gates ensure the highest quality standards even when the production processes are difficult to control.

Measured tests are unavoidable elements not only in the manufacture of transmitters but also in the production of sensor elements. Relevant characteristic values of products are measured by largely automated measuring equipment at suitable stages of the production process. These values either form the basis of sorting/calibration or as initial data for subsequent manufacturing processes. Visual inspections of intermediate and finished products are employed either by means of self-examination or at purpose-specific inspection sites. Authorized employees conduct procedurally established tests with results documented in manufacturing records or stored by the measuring systems so it can be back-traced easily thereby ensuring the unambiguous test status of the processing units. Depending on the technology in use, only in exceptional cases can processes be characterized and monitored by statistical methods, and therefore the regulation of the processes is conducted primarily via process measurement data or through self-testing by the operators in accordance with the targets laid down in the working instructions.

How can back tracing of manufactured product made possible?

Depending on the production requirements, the **back tracing**[22] of batches, manufacturing commissions or individual pieces to all or specific production phases is established during the development phase. Established back-tracing methods enable the optimization of the manufacturing run-throughs on the one hand, and on the other hand ensure that, in the event of a problem, all affected units can be identified. With transmitters, the ability to back-trace guarantees that, in the event of faulty products during the manufacturing process, only after it have been worked on and successfully re-tested it can be further processed as reliable fault-free products. The appropriate back-tracing data is stored in the manufacturing records or saved by the QM Department and is retained in accordance with the archive regulations.

DOCUMENTS

22) For further details on the handling of manufacturing proofs refer to QSV QS-003 „Documentation".

Chapter 11

What happens when a problem arises in spite of all precautions?

The occurrence of problems can be minimized but never fully eliminated. Efforts to learn from observed problems and to reliably avoid their reoccurrence are what differentiates the best from the good.

Customer care is the magic word. Our customer care is the basis of our success and the reason why clients consistently choose E+E Elektronik as a partner. The fastest possible resolution of problems and notification thereof to the client are just as much a matter of course for E+E Elektronik as the unbureaucratic and obliging resolution of the problem.

Problem solving = service competence that most of our clients may never even find out about

Who should be contacted in the event of a problem?

A "problems hotline" exists under the same number as that for queries and orders (see chapter 6). The fullest possible and most accurate details provided by customers enable us to tackle and resolve the problem quickly.

How is our clients' product problem dealt with?

Regardless of the possible cause of a problem experienced by a client during the use of one of our products, the problem will be localized, analyzed and an appropriate solution introduced all in accordance with an established **customer care procedure**[23]. Problem solving is organized within the company in such a way that competent experts take charge of the situation without unnecessary delay, make arrangements for a speedy report to the client after conducting a first analysis and, after an exhaustive investigation of the causes, introduce appropriate improvements where these prove to be necessary. The alleviation of the problem is also organized and monitored by the Sales Department as the responsible customer care area. The specialized characteristics of sensor technology is such that the majority of problems are not traced back to defective products, but lie in the often very specialized use of the products. One of the

DOCUMENTS

23) For details on practical procedures for customer care and following up on customers comments refer to QSV PM-001 "Product management" and KA-001 'Calibration Department'

strengths of E+E Elektronik in such cases is the competent and highly valued user support that we extend to our clients.

What relative importance do service errors have?

Because logistic, packing, labeling or dispatch errors can have just as serious consequences for our clients as product faults, in principle we make no distinction between different types of problems and, thus, deal with all problems related to clients according to the same regulations and with the same degree of care.

How are internally recognized product defects handled?

In the Manufacturing Department defect products, which arise, are dealt with in accordance with **established procedures**[24)] and, thereby, are immediately worked on again so that they can either be re-introduced into the manufacturing process after having been repaired by specialized units, or they are scrapped on technical or economic grounds. The product tracing in the production process is organized in that erroneous further processing or perhaps the dispatch of products known to be faulty is impossible. Should defects in previously delivered products be a possibility despite all the measures taken, it is ensured through established escalating steps that the problems are resolved at the client's premises if and as necessary. Records and data on defects, which occur during the manufacturing process, are kept as statistics and form the basis, when appropriate, of efforts by department managers or the QM Department to introduce improvements.

DOCUMENTS

24) The regulations for handling products during manufacturing and dealing with defect products are very different depending on the product type and are, therefore, integrated into the working instructions.

Chapter 12

What is the basis for continuous improvements?

Quality is no coincidence. It is a matter of systematic commitment.

For all employees of E+E Elektronik, whether they work directly on the client's product or make some indirect contribution to the product or service quality of the company. Continuous improvements and further development form part of their activities as a matter of course. Instead of leading to a search for someone to blame, the appearance of weaknesses always serves as a stimulus for the resolution of the problem in a professional manner.

When something works as it should, how can it be simplified?

What triggers for improvement measures are there?

The following table gives an overview of the most important sources of improvement measures within the company.

Source of data	Remarks	Responsibility
Client comments	Complaints, travel reports etc.	QM, Sales
Evaluation of the defect	Data and records in the Manufacturing Department	Production, Process Development, QM
Tracing of cost centers	By means of simple and useful cost tracing	Management, Production
Agreements on the objectives	Measures and objectives from the Management review	Managing Director, Department Heads
Implementation problems	Difficulties in applying the established regulations	All employees
Audit results	Collectively established potential for improvements	QM
Internal suggestion system	ISS with established assessment and incentive procedures	ISS Manager
Continuous Improvement Process	CIP with established procedure	CIP Manager

How are improvement plans implemented?

The responsibilities of every departmental head include the introduction of **improvement measures**[25]. On the basis of evaluated data or practical observations, defined improvement plans are introduced and followed-up. In doing so, particular attention is paid to ensuring that, with due regard to the available resources, important improvements are assigned to responsible individuals with agreed deadlines. Accurate fulfillment of deadlines, documentation of the measures introduced and an appropriate test of the measure's effectiveness differentiate such "strategic" improvement measures from conventional, periodic improvement measures.

DOCUMENTS

[25] Regulations on improvement measures are established in QSV QS-002 „Corrective and Preventative Measures".

How is the benefit of the management system examined?

As E+E Elektronik's only organizational system, the integrated Management System is intended to provide optimal support for reaching the company's goals through the co-operation of different departments and interested partners. The Management System is, therefore, used as a management tool with the objectives of ensuring and optimizing the business processes and, as such, must serve to promote the improvement of the company's performance as a whole. The checking and further development of the Management System is conducted through internal **audits**[26], which are employed in an above average fashion as critical system tests. The original purpose of E+E Elektronik's internal audits, to periodically check the use of the regulations, meanwhile is only of very limited importance. The objective of internal system audits clearly consists in achieving value added.

DOCUMENTS

[26] The use of internal audits is laid down in QSV QS-007 „Internal Audits".

How can clients and suppliers stimulate improvements?

Comments of every kind are very important for us!

Last but not least, we would like this handbook to encourage our business partners to give us their comments in order to be able to work on any potential improvements, which are incredibly important to us but which, despite all our efforts to date, we have not as yet recognized due to our inevitably subjective viewpoint. The QM Department as management system operator welcomes any relevant feedback.

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Appendix

The content of this handbook not only answers general questions about the Management System of E+E Elektronik in an easily readable form, but is also laid out to reflect regulatory standards.

In order to make the inspection of the Management System easier, the following overview is included in the handbook. The regulatory elements, which are found in the handbook, have been classified on the basis of the chapter in which they are mentioned. Comprehensive information concerning the ways in which the appropriate regulatory requirements are considered in the Management System is only given in the form of references to more detailed system documents.

Chapter	Clause ISO 9001	Clause ISO 14001	Clause IEC 80079-34	Clause TS 16949
1	4.2	4.4.4, 4.4.5, 4.4.6, 4.5.3	4.2	4.2
2	4.1, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 8.5	4.1, 4.2, 4.3.3, 4.6	4.1, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 8.5	4.1, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 8.5
3	5.5, 6.1	4.4.1	5.5, 6.1	4.1, 5.5, 6.1
4	5.4, 8.1	4.2, 4.4.1, 4.3.2, 4.4.3	5.4, 8.1	5.4, 7.5, 7.6, 8.1
5	6.2, 6.3, 6.4, 7.6	4.4.2, 4.4.6	6.2, 6.3, 6.4, 7.6	6.2, 6.3, 6.4, 7.6
6	6.3, 6.4	4.2, 4.3.1, 4.3.4, 4.4.1, 4.4.4, 4.4.7	6.3, 6.4, 7.3	6.3, 6.4, 7.3
7	5.2, 7.2	4.4.6	5.2, 7.2	5.2, 7.2
8	7.1, 7.2, 7.3	4.4.6, 4.5.1	7.1, 7.2, 7.3	7.1, 7.2, 7.3
9	7.4, 8.4	4.4.6, 4.5.1	7.4, 8.4	7.4, 8.4
10	7.1, 7.5, 8.2, 8.3	4.4.6, 4.5.1	7.1, 7.5, 8.2, 8.3	7.1, 7.5, 8.2, 8.3
11	8.3, 8.4, 8.5	4.5.2	8.3, 8.4, 8.5	8.3, 8.4, 8.5
12	8.2, 8.4, 8.5	4.5.1, 4.5.2, 4.5.4	8.2, 8.4, 8.5	8.2, 8.4, 8.5

The assignment of the elements EN ISO/IEC 17025 for the restricted field of the accredited calibration laboratory is defined in a special handbook of the calibration department. Within the accreditation scope the calibration department laboratory acts as accepted independent third party laboratory.

The following illustration serves as a rough overview of the most important established processes and activities in the company. It shows the relationship by the arrangement as management and support elements and the special orientation towards customer requirements and expectations. In order to monitor and to optimize this conversion continuously, the defined processes are studied and improved according to objectives.

Process Scenery of E+E Elektronik GmbH