# SUPPLIER QUALITY MANAGEMENT SYSTEM REQUIREMENTS

## 1.0 Purpose

The purpose of this document is to provide the minimum Quality System requirements to suppliers of Electro Switch Corporation, Digitran unit.

## 2.0 DEFINITIONS

*Certificate of Conformance:* A legal document provided by the supplier that states their compliance to all applicable drawing, specification and purchase order requirements.

*Deviation*: A specific written authorization granted prior to the manufacturer of an item to depart from a particular requirement (s) of an item's currently approved configuration documentation for a specific number of units or a specified period of time.

*First Article*: The first items of a production run that are the result of a planned process designed to be used for future production of these same items. Prototype parts or parts built using methods different from that intended for the normal production process, shall not be considered as first article production parts.

*Non-conforming product*: Any material or product that does not meet the associated engineering drawing or specification or was not processed in accordance with the proper specification or procedure.

*Product acceptance records:* Official records to be maintained by the supplier indicating a product passing through planned operations and satisfying planned requirements during product realization. (E.g. signed routers, completed ATP data sheets.)

*Qualified Distributor:* A distributor that has met the requirements specified in this document.

*Quality Management System:* The collection of documents and procedures and standard practices that are used to define and effectively implement the organization's quality goals.

*Raw Material:* Unfinished constituents of a finished product. Material that requires further processing to become the finished product.

*Root cause corrective action:* Action taken to eliminate or reduce the cause of an existing non-conformity, defect, or other undesirable condition at the most fundamental level.

*Special process:* This is a process which may alter the chemical or physical properties of the item. The impact of such a process cannot typically be evaluated without destructive testing, such as:

- Chemical processing
- Coatings
- Welding, Brazing
- Non-Destructive test
- Heat treatment
- Composites
- Non-Conventional machining & Surface enhancements
- Materials testing lab.

*Standard part:* A part manufactured in compliance with an established U.S. Government or industry accepted specification which includes design, manufacturing, and uniform identification requirements. The specification must include all necessary information to produce the part.

*Waiver:* A written authorization to accept an item, which during manufacture or after having been submitted for acceptance is found to depart from specified requirements but is suitable for use as is or after repair.

## 3.0 Quality Management System

3.1 General Requirements

Manufacturers shall establish a documented Quality Management System (QMS) that is compliant to AS9100 or ISO9001. Distributors shall be compliant with AS9120 or ISO9001.

Suppliers shall meet the requirements of the Digitran purchase order completely, including any Quality Clauses (see QSF PUR-01/5). If any second tier supplier is required, it is the supplier's responsibility to ensure that Digitran purchase order requirements, including this requirement, are flowed down to the sub-tier supplier and to assure that all records of product manufacture and inspection are maintained in accordance with this requirement.

Any suppliers not certified to any of the standards required herein are subject to periodic audits by Digitran quality assurance representative.

3.2 Configuration control

The supplier shall maintain engineering, manufacturing and quality controls such that the configuration of the items being delivered conform to the performance specifications specified. Written consent from Digitran shall be obtained prior to making any changes to the functional, physical or operational interchangeability, safety, reliability, service life and maintainability of product prior to any deliveries. Digitran Company reserves the right to reject and/or retain any delivered items against the purchase order until concurrence of the supplier's submitted change request is approved.

3.3 Control of Documents

All documents in the quality management system shall be controlled and accomplish the following:

- Approve documents for adequacy prior to issue
- Review and update as necessary and re-approve documents. The latest revision of industry standards shall apply unless otherwise specifically stated in the purchase order.
- Ensure that changes and current revision status of documents are identified.
- Ensure that relevant versions of applicable documents are available at points of use.
- Ensure that documents remain legible and readily identifiable.
- "White-out" or correction tape or fluid shall not be used on any QMS records.
- Ensure that documents of external origin are identified and their distribution is controlled.
- Prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.

3.4 Records

Quality records shall be maintained to provide evidence of product conformity to requirements and of the effectiveness of the QMS. Product acceptance records shall be maintained for a minimum of 10 years unless otherwise specified on the contract. Records shall be legible and readily identifiable and retrievable. If for any reason the

supplier is unable to maintain the records for the specified retention period, Digitran quality assurance shall be notified so that alternative arrangements can be made to store the records.

## 4.0 Resource Management

4.1 Human resources

The supplier shall ensure competence of their personnel. Job descriptions shall be prepared identifying the qualifications required for each position that affects product quality.

Qualifications shall include the requirements for education, skills, experience and training.

All employees shall be trained on the relevance and importance of their activities and how they contribute to the achievement of the quality objectives.

4.2 Work environment

A work environment suitable for achieving product conformance shall be maintained. Requirements for a suitable environment shall be determined during quality planning and documented in the quality plan.

## 5.0 Product realization

5.1 Review of requirements related to the product

The supplier shall have a process in place for the review of the requirements related to the product. The review shall be conducted before the order is accepted. The process shall ensure that:

- Product requirements are defined
- Contract or order requirements differing from those previously expressed are resolved
- The supplier has the ability to meet the defined requirements
- Records are maintained showing the results of the review and any actions arising from the review
- Where Digitran does not provide a documented statement of requirements, the requirements are confirmed with Digitran before acceptance

- Where product requirements are changed, the supplier shall communicate changes to relevant personnel, sub-tier suppliers and amend relevant documents

5.2 Order of precedence

In the event there is a written Digitran requirement that appears to be in conflict with any other requirement, the supplier shall contact the Digitran buyer who will forward the request for clarification to the appropriate internal function.

5.3 Purchasing

A documented procedure shall be followed to ensure that purchased product conforms to the specified purchase requirements. The procedure shall outline the extent of control required for suppliers. Suppliers shall be evaluated and selected based on their ability to supply product in accordance with contract requirements.

5.4 Purchasing information

The information contained in a purchase order shall describe the product to be purchased, including where appropriate:

- Requirements for approval of product, processes and equipment
- Requirements for qualification of personnel
- Quality management system requirements
- Flow-down of applicable customer requirements.

The purchasing documents shall be reviewed to ensure the adequacy of requirements before orders are placed with sub-tier suppliers to assure proper flow down of all contract requirements including FAR and DFAR regulations.

5.5 Verification of purchased product

The supplier shall establish a process to verify that purchased product meets the specified purchase requirements. Verification activities may include inspection and audits on the supplier's premises.

Independent lab analysis shall be performed on raw material on a periodic basis to confirm the accuracy of the material certification received by their suppliers.

5.6 Validation of processes for production and service

The supplier shall validate any process or special process for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement. This includes any processes where deficiencies become apparent only after the product is in use or the service has been delivered or that requires destructive testing to validate. Validation demonstrates the ability of these processes to achieve planned results.

5.7 Identification and traceability

When specified on the individual contract, the supplier shall identify the product throughout product realization. The supplier shall control and record the unique identification of the product. The traceability system must facilitate the rapid identification and notification of any part delivered and suspected of being defective.

5.8 Customer property

All suppliers in possession of Digitran-owned property shall have a documented process for controlling customer property. The suppliers shall exercise care with customer property while it is under the organization's control or being used. If any customer property is lost, damaged or otherwise found to be unsuitable for use, this shall be reported to the customer and records maintained.

5.9 Preservation of product

The supplier shall preserve the conformity of product during internal processing and delivery to the intended destination. This preservation includes identification, handling, packaging, storage and protection; and where applicable, shall include provisions for cleaning and prevention and detection of foreign objects.

5.9.1 Foreign Object Debris/Damage (FOD) prevention

When specified on the individual contract, a FOD prevention program shall be maintained. It shall include the review of design and manufacturing processes to identify and eliminate foreign object entrapment areas and paths through which foreign objects can migrate.

The supplier shall ensure work is accomplished in a manner preventing foreign objects or debris in deliverable items. The supplier shall maintain work areas and control tools, parts and materials in a manner sufficient to preclude the risk of FOD incidents.

Supplier's FOD prevention program shall include a periodic self-assessment of its internal FOD prevention practices, including each respective subcontractor's FOD prevention program at every tier to measure effectiveness of program compliance to requirements. Supplier's FOD prevention program shall provide initial and periodic FOD training to the supplier's employees.

Supplier's FOD prevention program shall, at a minimum, contain the following elements:

- Design and Manufacturing Process review
- Performance measurement
- Training
- Material handling and parts protection
- Housekeeping
- Tool accountability
- Hardware accountability
- Lost items search and documentation process
- Physical entry control into FOD critical areas
- FOD focal point

5.9.2 Material storage and environmental control

When age sensitive material is used for manufacture, the supplier shall identify each material container with the part number and expiration date. Age sensitive raw material provided to Digitran, shall include the date of manufacture, lot number and expiration date. Certs and/or test reports shall include the same information. The packaging for temperature sensitive material shall be suitable for transportation in a manner to maintain the integrity of the material and shall be clearly marked on the outside as containing temperature controlled material. Digitran reserves the right to reject such material delivered and found that the packaging has been damaged as to compromise the integrity or significantly reducing its life expectancy.

Suppliers shall ensure that any ESD sensitive materials, devices, or assemblies capable of being damaged or destroyed by static electrical charge, shall be handled in accordance with MIL-STD-1686. Intermediate and shipping containers shall be clearly marked as "ESD Sensitive" or in accordance with MIL-STD-1686.

## 6.0 Measurement, Analysis and Improvement

6.1 Control of Monitoring and measuring devices

The supplier shall determine the monitoring and measurement needs as well as the devices required to provide evidence of conformity of product to determined requirements. A documented procedure shall outline the process used to ensure that monitoring and measurement be carried out in a manner that is consistent with the requirements.

Where necessary to ensure valid results, measuring equipment shall be:

- Calibrated or verified at specific intervals, or prior to use, against measurement standards traceable to international or national measurement standards
- Identified to enable the calibration status to be determined
- Safeguarded from adjustments that would invalidate the measurement results
- Protected from damage and deterioration during handling, maintenance and storage.

In Addition, quality control shall assess and record the impact of an out-of-tolerance measuring device and take appropriate action on product affected by the use of the non-conforming device. Positive recall of product part numbers, quantities and manufacturing dates shall be determined as necessary.

6.2 Internal audit

The supplier shall conduct internal audits at planned intervals to determine whether the quality management system conforms to the requirements contained in this document. Objective evidence of completed audits and conformity must be maintained by the organization.

6.3 Monitoring and measurement of processes

The supplier shall apply suitable methods for monitoring and where applicable, measurement of the Quality Management System processes. These methods demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, corrective action shall be taken as appropriate.

Special process suppliers shall provide certifications for each special process or NDT method performed (e.g. metal to metal bonding, plating, anodizing and heat treating). Certification shall provide evidence of compliance to drawing, specification and/or purchase order and contract requirements in accordance with this document.

6.4 Monitoring and measurement of product

The supplier shall monitor and measure the characteristics of the product to verify that product requirements have been met. This shall be carried out at appropriate stages of the product realization process in accordance with the planned arrangements. Evidence of product conformity shall be maintained.

6.5 First Article Inspection Requirement

The supplier's system shall provide a process for the inspection, verification and documentation of the first production article and updates to it in accordance with AS9102.

A First article is required when:

- A supplier is producing the parts for the first time
- A revision change to the part which is not administrative
- A lapse in production exceeding 3 years
- A repaired, reworked or new tooling

6.6 Control of non-conforming product

The supplier shall ensure that product which does not conform to product requirements is and controlled and identified to prevent its unintended use or delivery. Non-conforming material shall be segregated and placed in bonded area until MRB disposition is complete.

Digitran suppliers are not authorized to make “use as is” or “repair” dispositions without a written consent from Digitran.

The supplier shall notify Digitran of any non-conforming material that may have been inadvertently shipped, within 24 hours of discovery.

6.7 Analysis Of Data

The supplier shall determine, collect and analyze appropriate data to demonstrate the suitability and effectiveness of the Quality Management System (QMS) and to evaluate where continual improvement of the QMS can be made.

The analysis of data shall provide information relating to:

- Customer satisfaction
- Conformity to product requirements
- Trend analysis of processes and products including opportunities for preventive action
- Supplier performance (sub-tier)

6.8 Corrective Action

The supplier shall take action to eliminate the root cause of non-conformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the nonconformities encountered.

A documented process shall be established to accomplish the following:

- Immediate containment of all potential non-conforming material or product
- Determine the root cause of the non-conformance
- Evaluate the need for and implement preventive action
- Record the results of action taken
- Review corrective action taken for effectiveness

**7.0 Supplier Performance**

Digitran maintains Supplier performance data, based on both Quality and On Time Delivery. This performance metric is used in the selection of suppliers before the contract/PO is awarded. Suppliers are expected to maintain a minimum of 98% quality and OTD, the goal is 100%. Early deliveries are usually communicated during the quoting process.

Suppliers are expected to work with Digitran personnel to continuously find process and cycle time improvements as well as cost reductions.

Failure to meet the Digitran acceptable performance ratings may result in the re-evaluation of the supplier's approval status.

**8.0 Certificate of Performance**

All product received at Digitran requires a certificate of conformance/compliance stating that the material or services being produced meet the purchase order requirements. The C of C shall contain the following information:

- The item(s) part number
- Revision letter
- Quantity provided in this shipment
- Digitran purchase order number and item number (if applicable)
- Date of shipment
- Authorized signature. Must be quality manager or a designee.
- Signature must be hand written.

Test reports or data shall be provided when specified on the purchase order, otherwise, they shall be kept at the supplier's facility and stored in accordance with paragraph 3.4 of this document.