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PURCHASE DOCUMENT QUALITY CLAUSES

SIGNATURE	DATE	SIGNATURE	DATE	CURTISS-WRIGHT CONTROLS INTEGRATED SENSING, INC.			
DFT T. GOETZ	9/17/97	PROD T. COOKSEY	9/17/97	665 N. BALDWIN PARK BLVD., CITY OF INDUSTRY, CA 91746			
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**CURTISS-WRIGHT CONTROLS INTEGRATED SENSING, INC.
CITY OF INDUSTRY, CALIFORNIA**

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**CURTISS-WRIGHT CONTROLS INTEGRATED SENSING, INC.
CITY OF INDUSTRY, CALIFORNIA**

1.0 PURPOSE

To provide instructions for the use of quality clauses on purchase orders issued by Curtiss-Wright Controls Integrated Sensing Inc. (CWCIS)

2.0 SCOPE

This procedure is applicable to all CWCIS purchase orders issued for Group I and II procurements. Parts, materials and supplies purchased as Group III procurements have no quality requirements and shall not be used in shippable hardware.

3.0 RESPONSIBILITY

The CWCIS Purchasing Department shall have the responsibility to assure that the relevant quality clauses are applied to the applicable purchase order as required by this procedure or customer requirements.

4.0 DEFINITIONS

Group I Procurements	Procurements for products or services for which conformance to requirements because of complexity cannot be verified upon receipt by CWCIS.
Group II Procurements	Procurements for products or services for which conformance to requirements can be verified upon receipt by CWCIS.
Group III Procurements	Procurements for products or services have no contractual requirements

5.0 APPLICABLE DOCUMENTS

CWCIS Document 170-0001	CWCIS Quality Policy Manual
CWCIS Procedure 140-0056	Purchasing

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5.1 General Requirements

5.1.1 Prior to the release of any purchase order documents, the applicable Group, and quality clauses shall be determined by purchasing in accordance with the requirements listed within this procedure, and enumerated on the purchase order (e.g. Group II, QA 2)

5.1.2 In the event that a situation arises that a type of procurement is not addressed by specific quality clauses, purchasing will request that Quality Engineering determine the applicable quality clauses on a case by case basis and notify purchasing of the applicable clause(s)

5.1.3 The Purchasing Department shall use the listed QA clauses for the following types of procurements.

Custom Fabricated Parts (Mechanical - cases, brackets, heatsinks, covers etc)		-QA-2
Custom Fabricated Parts (Electrical - diodes, transistors, resistors, transformers, I.C.'s etc.)		-QA-2, QA-16
Distributor Parts (Electrical) *if test data is required add QA-9		-QA-3
Distributor Parts (Mechanical & Chemical)		-QA-3
Printed Wiring Boards *If MIL-P-55110 is required add QA-17		-QA-2
Special Processes (Plating, Painting etc.)		-QA-2
Outside Testing Labs		-QA-4, QA-8,
Inspection, Measuring and Test Equipment		-QA-4

5.1.4 If a contract requires purchasing controls beyond the scope of QA Clauses, Quality Engineering shall provide purchasing necessary instructions in writing. Any special quality requirements shall be listed on the purchase order.

5.1.5 When verbal orders are placed over the phone purchasing shall be responsible to assure that applicable QA-Clauses and requirements are conveyed to the vendor.

5.2 Exclusions

5.2.1 CWCIS at its option may elect to perform the first article in place of the vendor. The successful completion of the first article by CWCIS receiving inspection shall satisfy the first article requirements of quality clause QA-25.

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ATTACHMENT A

PURCHASE DOCUMENT QUALITY CLAUSES

**PURCHASE DOCUMENT QUALITY CLAUSES
MODEL NO. PROC171**

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Curtiss-Wright Controls Integrated Sensing Inc.
Purchase Order
Quality Assurance Clauses

QA-1 ISO-9001 Quality Control System

The vendor shall establish and maintain a quality system that complies with the requirements of ANSI/ISO/ASQC Q9001-2000 or later. A quality system survey may be required and is subject to audit by the CWCIS. The following clauses of this document also apply, as applicable; QA-5, QA-8, QA-14, QA-15, QA-22, QA-23, QA-25, QA-28

QA-2 Inspection Control System

The vendor shall establish and maintain a quality system that complies with the requirements of MIL-I-45208A. A quality system survey may be required and is subject to audit by the CWCIS Corporation. The following clauses of this document also apply, as applicable; QA-5, QA-8, QA-14, QA-15, QA-16, QA-22, QA-23, QA-25 and QA-28.

QA-3 Distributor Control System

The vendor shall establish and maintain a system to assure compliance with purchase order requirements, assure effective material control procedures, maintain material traceability control documentation, and establish proper handling, storage, packaging and shipping procedures for the materials furnished. A quality system survey may be required and is subject to audit by CWCIS. The following clauses of this document also apply; QA-5, QA-8, QA-11B, QA-13, QA-14, QA-15, QA-16, QA-22, QA-23.

QA-4 Metrological Confirmation System for Measuring Equipment

The vendor shall establish and maintain a system that complies with ISO-10012-1 or ANSI/NCSL Z540-1-1994. The system shall assure that all equipment calibrated by the vendor is traceable to NIST (National Institute for Standards and Technology).

QA-5 Measurement and Test Equipment Standards

The vendor shall assure that all measurement and test equipment used as a media of inspection for goods or services supplied to CWCIS are calibrated in accordance with the requirement of ISO-10012-1 or ANSI/NCSL Z540-1-1994. Records of calibration shall be traceable to the National Institute of Standards and Technology.

QA-6 Source Inspection - CWCIS

CWCIS source inspection is required prior to shipment against this purchase order. Advance notice of 72 hours must be provided prior to the planned ship date. The vendor shall provide at no cost adequate facilities, equipment and documentation to determine compliance to purchase order requirements. It shall be understood that verification by CWCIS at the vendors facility does not relieve the vendors responsibility to provide compliant product, nor shall any inspections preclude subsequent rejection by CWCIS

QA-7 Source Inspection - CWCIS Customer

Source inspection by CWCIS Customer is required prior to shipment against this purchase order. The vendor shall notify CWCIS Quality Engineering a minimum of 96 hours prior to the planned ship date. CWCIS Quality Engineering will coordinate an inspection schedule with its customer and the vendor. The vendor shall provide at no cost adequate facilities, equipment and documentation to determine compliance to purchase order requirements. It shall be understood that verification by CWCIS customer at the vendors facility does not relieve the vendors responsibility to provide compliant product, nor shall any inspections preclude subsequent rejection by the customer

QA-8 Certification of Conformance

Each shipment must be accompanied by a certification stating that the items were produced from materials on which the seller has objective evidence of conformance to applicable specifications. The certifications should contain the signature of an authorized representative of the seller, unless otherwise specified on the certification (electronic signatures or signature stamps are permissible). When the certification does not contain a signature the certification must be part of the packing list or contained on a company letterhead. Certifications may be provided on electronic format. Where raw materials are used by the vendor in the fabrication of parts provided to CWCIS, the vendor must retain the manufacturers' certifications as well as the chemical and physical certifications for raw materials for a minimum of 7 years

QA-9 Conformance / Test Data

Each shipment shall be accompanied by conformance / test data showing actual test results identifiable to the individual products submitted. The data must be signed by an authorized representative of the agency performing the test and must perform to specified requirements. All measurements must be within the established limits of the specification drawing.

QA-10 Chemical and Physical Test Reports

Each shipment must be accompanied by chemical and physical test report (s) identifiable to the materials submitted. The report (s) must contain the signature and title of an authorized representative of the agency performing the test and must assure conformance to specification requirements.

QA-11A Raw Material Traceability

The materials supplied must be identifiable by lot number, material type, and specification traceable to records of acceptance. Fabricated parts shall be identified to the lot of materials used.

QA-11B Electronic Component Traceability

Electronic components (Integrated circuits, transistors, microprocessors, diodes, etc) procured under this order require certifications that ensure traceability to the original manufacturer of the component. The vendor, upon request from CWCIS shall provide traceability to the original manufacture within 96 hours. Failure to do so will result in a rejection of the component

QA-12 Process Approval

Any special processing such as welding, heat-treating, electro plating, anodizing, chemical films, or NDT must have CWCIS approval of the processing equipment, procedures and personnel prior to fabrication under the purchase order. QA-28 Also applies

QA-13 Component Date Code Limits

Date codes for supplied components and materials shall not exceed three (3) years, unless otherwise specified. CWCIS may reject components with a date code older than three (3) years from the date of delivery as required by the purchase order. Where vendors provide components that are older than three (3) years, the components shall be solderable and be accompanied with original manufacturers certifications. Where the manufacturer's certifications are not available, contact CWCIS for additional instructions

QA-14 Age Control

Products, which deteriorate with age or environment, shall be permanently and legibly marked with the product expiration date. The date must also be included on the packing list. No more than 50% of the shelf life specified by the manufacturer shall have expired at the time of receipt by CWCIS.

QA-15 Vendor Non-Conforming Parts

The vendor shall notify and make arrangements for the approval of any nonconforming material to be submitted to CWCIS. This approval must be in writing and contain the signatures of CWCIS engineering and quality assurance. The vendor shall coordinate the approval with the CWCIS buyer shown on the purchase order. When parts are received at CWCIS that do not conform to the applicable drawings or specifications, the nonconformance shall be documented indicating the nature of the non-conformance(s). The vendor shall be notified for all non-conformances and shall have the responsibility of establishing the corrective action to prevent recurrence of the nonconformance.

If the reject is repetitive, a written cause and corrective action may be required. A non-response to corrective action request may affect approved vendor status. Parts dispositioned as "Use As Is" do not negate or change the drawing or purchase order requirements

QA-16 Minimum Packaging Requirement

Parts delivered to CWCIS shall be packaged and protected from deterioration and physical damage. Damaged finishes or details, distorting, or internal damage shall be reason for rejection. When multiple part types are shipped in one container, each part number shall be segregated and packaged into a separate internal container. The applicable part number shall appear on each individual package within the container. All data sheets shall be packaged in a common envelope inside the outer container, not separately with each unit. When electronic components are provided and are determined to be electro static sensitive QA-17 shall apply.

QA-17 Electro Static Discharge Protection

Protection from electrostatic discharge shall be provided to all class I, II, or III ESD susceptible devices in accordance with the manufacturers requirements. The protection level provided by the individual manufacturer shall be extended through all procurement handling, storage, packaging and shipping cycles.

QA-18 Printed Wiring Boards

The vendor shall assure that the materials, manufacture, testing and packaging of PWB's supplied to CWCIS is in accordance with all the requirements of MIL-P-55110, Printed Wiring Boards, including solderability. Conformance test data shall be provided for each lot shipped to CWCIS.

QA-19 Solderability of External Leads and Terminals

External leads, pins and terminals of all components and parts shall be tested to comply with the solderability requirements of MIL-STD-202, Method 208.

QA-20 Certification of Soldering and Inspection Personnel

The vendor shall assure that all soldering and inspection performed on assemblies are accomplished by personnel that are currently certified to IPC specification IPC-A-610 for high reliability soldering.

QA-21 CWCIS In-process Inspection

CWCIS in process inspection is required prior to coating or encapsulation of soldered assemblies. Advance notice of 72 hours must be provided to CWCIS quality assurance prior to the planned coating and/or encapsulation date. The vendor shall provide, at no cost, adequate facilities, equipment and documentation to determine compliance to the purchase order requirements.

QA-22 Right of Entry / Access

CWCIS, its customers and applicable regulatory agencies reserve the right to conduct inspections and surveillance of the vendor's facility during any point in the manufacturing cycle. The vendor (and his subcontractors) shall permit CWCIS and/or CWCIS customers' access to all records related to the processing, manufacture, assembly, inspection or test of parts or equipment to be supplied to CWCIS. All contacts with sub-tier subcontractors will be coordinated with the vendor. The vendor (and his subcontractors) shall provide reasonable assistance and facilities to CWCIS and/or CWCIS customers engaged in activities related to CWCIS procurements.

QA-23 Record Retention Requirements

Materials parts or processes supplied on this purchase order require that all manufacturing and inspection documentation including but not limited to raw material certifications, build documentation, nondestructive test (NDT) results be retained for a minimum of seven years after date of shipment.

QA-24 Reserved**QA-25 First Article Requirements**

Parts and materials supplied to CWCIS Corporation that are fabricated to CWCIS drawings require a first article inspection to be performed to all drawing characteristics, including notes. Where the vendor performs a modification to a part, that vendor is only responsible for conducting a F/A on the aspects modified. The first article shall be performed during initial production of the part and at any revision change to demonstrate the vendors' ability to produce a compliant part. The first article may be recorded in accordance with CWCIS procedure #171-0011 or other suitable procedure provided that the minimum information required by this clause is provided to CWCIS. The first article piece shall be segregated and identified as the first article by tag or other temporary marking method and sent with the completed first article form.

The vendor may use their form to record the first article data provided the following minimum information is recorded: first article date, the name, signature or other identifier of who performed the first article, vendors name, part number & revision, P.O. number, equipment used to perform the first article inspection, each drawing requirement or attribute including notes and associated tolerance itemized by number, the results for each requirement / attribute and a pass / fail result recorded on the first article sheet for each requirement / attribute. This clause does not apply to vendors providing off the shelf components (COTS) or distributors of components

QA-26 Customer Imposed Special Process Requirements

Processes required in the fabrication of items on this purchase order (e.g. chemical films, coatings, plating, passivation, NDT etc.), must be performed by the vendors listed in the TEXT block of the purchase order or otherwise provided by CWCIS purchasing. Certification of these processes shall be submitted with the parts. Contact CWCIS purchasing for questions regarding supplier approved process vendors.

QA-27 Quality Improvement Required

When your company's Quality rating for products supplied to CWCIS falls below 70% acceptance, specific action is required at your facility to improve the delivered product quality. Items on this purchase order must be accompanied by a documented review of purchase order and product requirements in the form of a First Article report, signed by a Quality management representative.

QA-28 Notification of Anomalies and / or Changes

The vendor shall notify CWCIS when process anomalies or changes to the process or components occur that affect parts supplied to CWCIS fabrication drawing