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Supplier Quality Manual



Expertise Applied | Answers Delivered

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General Quality Expectations

Our expectations of suppliers and ourselves extend beyond the basic entry criteria that correspond to quality, delivery and cost to encompass service, technical knowledge, continuous improvement and more!

We set high standards that apply to Littelfuse and to our suppliers. Our suppliers are responsible for ensuring the quality of their products—with a goal of zero defects— meeting delivery commitments, and keeping costs competitive.

All suppliers are also expected to deliver high quality service, maintain appropriate inventory, demonstrate technical knowledge and make continuous improvements. We look for suppliers who are flexible, committed to growing the relationship and focused on the end user. In return, we provide the support, information and resources needed to help our suppliers meet these expectations, and to jointly achieve our goal of total customer satisfaction.

What we expect from you:

- Quality products that fully meet specification
- On-time delivery
- Competitive costs
- Adequate inventory
- Technical knowledge
- High quality service
- Continuous improvement
- Shared goals, and
- Commitment to the business relationship

All of the sections in this manual describe the specific requirements and expectations for doing business with Littelfuse.

Supplier Requirements Matrix

The following matrix describes the requirements for supplier qualification for doing business with Littelfuse.

Supplier Type	Risk Assessment	Environmental Testing	ISO/TS Required	Self-Survey Required	LF Validation Testing Required
Direct	Yes ¹	Yes	Yes ²	Yes	Yes
Indirect	Maybe ³	Yes	No ⁴	Yes	Yes
MRO	No	Maybe	No	No	No
Critical	Yes	Yes	Yes	Yes	Yes
Distributor	Maybe	Yes	No ⁴	Yes	Yes
Special Services	No	No	Yes	No	No

Direct Supplier – Any supplier of materials that are used in the creation of Littelfuse products. This will also include suppliers of pass-through or private label products sold by Littelfuse. Examples include plastic resin, resistance wire, purchased fuse holders, etc.

Indirect Supplier – Any supplier of material that is included with a product sold by Littelfuse but not part of the actual product. Examples include boxes, labels, foam packaging, blister packages, bulk chemicals, etc.

MRO Supplier – Stands for Maintenance, Repair and Operations. MRO Suppliers provide items and/or equipment that are necessary to produce Littelfuse products. Examples include cleaning supplies, paper towels, machine oil, small tools, repair parts, etc.

Critical Supplier – Any supplier that a Littelfuse Business Unit deems critical to the production of Littelfuse products. A Critical supplier can be made of any type of supplier in the Supplier Requirements Matrix.

Distribution Supplier – Any supplier that buys products from many manufacturers, stores the products, and then resells it to Littelfuse for production. Distributors can provide direct or indirect material for production but have little to no control over the quality of the materials they sell.

Special Services Supplier – Any supplier that provides services to Littelfuse that have no direct interaction with the manufacture of Littelfuse products. Examples include outside testing laboratories, gage calibration services, major vehicle/equipment maintenance services, etc.

Transportation and delivery suppliers are qualified and managed by the Global Logistics Department.

Note: In cases where a requirement is “Maybe” depends on how that product interacts with the customer. For example, Indirect materials suppliers and Distributors may require a risk assessment if they are considered Critical.

¹ Risk assessments are required of all direct suppliers as soon as practical. However, if a large, brand-name supplier (GE, DuPont, Lear, etc.) refuses to allow LF to audit them, the risk assessment can be skipped if there is consensus between the regional Purchasing Manager and the affected SBU Operations Manager to skip it.

² ASBU suppliers are required to have TS16949 or a plan to get certified to it within 1 year.

³ It is dependent on the relationship between the supplier and the final product of the customer. For example, if packaging is being used by the customer in their finished product, then a Risk Assessment will be required.

⁴ ISO certification is preferred.

Supplier Terms and Conditions

All suppliers are required to read and sign the Littelfuse Supplier Terms and Conditions and accompanying Cover Addendum. The Terms and Conditions boilerplate will be available on Supplier Workplace and on the Littelfuse.com website. Where the boilerplate is the document that covers all suppliers in general, the Cover Addendum will spell out all specific requirements for each part that a supplier will provide. Each buyer will go over this document with the top management of each supplier to make sure that the Terms and Conditions are understood and agreed to in writing. Once signed, the supplier will be expected to adhere to all of the requirements as specified. If there are any questions about the Terms and Conditions document, please speak with your assigned Strategic Buyer or regional Supplier Development Engineer.

Quality System Requirements

A current and recognized quality system is essential to start doing business with Littelfuse. In addition to being an overall good business practice, it also is a requirement of many of Littelfuse's customers. Documentation is a key element in providing all necessary proof that a supplier's quality system is being followed and that materials provided are within Littelfuse drawing specifications.

Suppliers providing direct and indirect materials to the Electrical (Powr-Gard) and Electronics Strategic Business Units (SBU's) are required to maintain a minimum a current of ISO 9000 certification. A copy of this certificate must be given to the regional Supplier Development Engineer upon initial receipt and upon each expiration date. The UL requirements are established on the drawing as needed.

Suppliers providing direct and indirect materials to the Automotive SBU are required to have a current ISO/TS16949 certification, or an ISO 9000 certification with the intent of achieving ISO/TS16949 certification within a 2-year period of starting business with Littelfuse. Those suppliers without either requirement will face the possibility of losing any automotive business to a supplier that does have these qualifications.

If the supplier has multiple facilities where Littelfuse products are made, one certificate with a scope covering all production facilities or each individual plant's certificate must be given to the regional Supplier Development Engineer.

Environmental, Health, and Safety (EHS) Regulations

Compliance with the Littelfuse Supplier EHS Policy (P571-7.4.0-022) and all government and local regulations regarding environmental controls is mandatory for all Littelfuse suppliers. The EHS Policy is based off of all Littelfuse customer requirements regarding substances of concern. Although this document covers most requirements in general, the parts that you provide might have special requirements that are above and beyond those listed in the EHS Policy. Please refer to the Supplier Terms and Conditions and your Cover Addendum documents for any special requirements.

- **IMDS submissions** (International Material Data System) are required of all Automotive SBU suppliers for every part they provide to the ASBU. Creating an IMDS account is free of charge, and can be done at www.mdsystem.com. Instructions for creating modules in IMDS are on the site. This is not a Littelfuse-maintained system, so any questions about the IMDS program or its operation should not be directed to Littelfuse. All IMDS submissions should be directed to account #2426.
- **IPC Declarations** are required from all direct and indirect raw material and finished goods suppliers to Littelfuse. Maintenance, Repair, and Operations items are generally excluded from this requirement, although there are exceptions. Your Cover Addendum document will highlight any MRO purchased items that will be subject to the IPC Declarations requirement. Every part number provided to Littelfuse must have a declaration, either individually or as a part family (if the family of parts contains the exact same material but only changes dimensional characteristics). This document must be resubmitted if there is any change to the raw material components or a change in supplier.

- **ICP Testing** (Inductively Coupled Plasma Spectrometry) might also be a requirement highlighted on your Cover Addendum. Suppliers will be required to send their own materials out to an independent lab for testing and submit the results to Littelfuse, or you will be required to submit 40 grams of current production material to Littelfuse plus a testing fee to have it tested for you. Results of these tests are submitted to our customers upon request to prove compliance to customer substance of concern requirements. If a product is found to have any substances of concern over acceptable limits as defined in the EHS Policy, or found to have a significant change in characteristics to indicate a change in raw materials without prior notification, a corrective action will be requested. Note: XRF (X-Ray Fluorescence) testing is not an acceptable substitute for ICP Testing.
- **Material Safety Data Sheets** (MSDS) must be submitted to Littelfuse for all raw materials used in the creation of all Littelfuse products. These are the documents that define all characteristics of a material from a safety perspective. Suppliers are responsible for collecting these documents from their own suppliers or for the creation of their own MSDS. All MSDS documents must be submitted to Littelfuse initially and anytime there is a change.

Littelfuse takes the safety of its workers and those of its suppliers very seriously. All suppliers must follow all applicable laws and regulations regarding worker safety.

Littelfuse Risk Assessment Process

Littelfuse uses a documented Risk Assessment process to evaluate suppliers on a regular basis. The Risk Assessment is an onsite visit of your facility that assesses:

- Management Philosophy
- Manufacturing Process Audit
- New Product/Process Development
- Supplier Quality
- Logistics
- Continuous Improvement
- Cost Analysis
- Environmental Systems
- Emergency Preparedness/Disaster Recovery Planning
- Company Security

Littelfuse risk assessment criteria are based off of the ISO/TS 16949:2002 standard, but the risk assessment also includes other sections not covered in that standard. It should be emphasized to suppliers that although it is based off of the TS standard, this is not a TS audit. This is a Littelfuse risk assessment, and the auditors assign findings based on the risk to Littelfuse, not strictly to TS guidelines.

A formal risk assessment report will be provided to suppliers within 2 weeks by Littelfuse Lead Auditor. The supplier will also need to submit a corrective action report for any Major or Minor findings in Supplier caWeb within 30 calendar days. We will consider a corrective action verification visit if necessary.

The outcome of the Risk Assessment is discussed with the regional Purchasing Manager, and the supplier's status on the Littelfuse Approved Supplier List is decided. Supplier status is one of the following:

- **Approved** – Supplier has done business with Littelfuse for greater than 12 months and is approved for all purchasing activities

- Probation – Supplier has done business for less than 12 months and is approved for most purchasing activities. The supplier's performance will be monitored during the probation period and a final decision will be made at the 12-month mark.
- Conditionally Approved – The Risk Assessment has identified issues that must be corrected. Suppliers on Conditional Approval will be reviewed in 6 months. If the corrective action has not taken place, a decision must be made by the Purchasing Manager to move them to Disqualified.
- Disqualified – The supplier has been disqualified from doing business with Littelfuse. It is possible for a supplier to become approved again once they have been disqualified, but it will take another Risk Assessment and it will require proof that any problems have been addressed and are effective.

Upon successful completion of the risk assessment, approved suppliers are added to the Littelfuse Approved Supplier List.

Qualified existing suppliers that the Global Purchasing Team identifies as having potential to advance to a partner or alliance relationship may also undergo one or more Periodically Product and/or Process audits to ensure that their quality practices are aligned with our global supply base strategy.

E571-137 Supplier On-site Evaluation Template

Littelfuse Self-Survey Form

Prior to doing an On-Site Risk Assessment of a supplier, we send a Supplier Self-Survey. This survey gives us some basic information about the supplier and their capabilities, and allows Littelfuse auditors some familiarization with the supplier before visiting. The last section of the survey has to do with Company Security, which is part of a requirement by U.S. Customs to maintain Littelfuse's C-TPAT (Customs-Trade Partnership Against Terrorism) certification. To maintain our certification and our ability to ship product across the border quickly and efficiently, we must ask every supplier about what security measures they have taken in their own facilities. The answers given in this survey are used in the Risk Assessment; 11 random "Yes" responses on the survey are chosen to be verified during the On-Site Risk Assessment. The Self-Survey must be returned within 5 days of the Risk Assessment to allow us time to review the responses and choose the questions Littelfuse auditors will verify.

E571-117 Supplier Self Survey Template

Advanced Product Quality Planning (APQP)

Suppliers are required to generate an Advanced Product Quality Plan in accordance with the AIAG APQP reference manual for every new Littelfuse automotive part. At a minimum the plan should include the five phases and listed contents below:

- Plan and Define Program Phase
 - Kick-off Meeting
 - Technical Review
 - Risk and Feasibility Assessment
 - Program Review
- Product Design and Development Phase
 - DFMEA
 - Design Review
- Process Design and Development Phase

- Gage Review
- Process Flow
- PFMEA
- Control Plan
- Prototype
- Program Review
- Product and Process Validation Phase
 - Proactive Containment
 - PPAP
 - Run-at-rate study
 - Program final review
- Feedback, Assessment and Corrective Action Phase
 - Lessons Learned
 - Early Production Containment completed
 - Open Issues closed

Suppliers for Littelfuse automotive parts are required to develop a project management timeline. Littelfuse Strategic Buyers and regional Supplier Development Engineers will review the project schedule as necessary or at requested intervals.

Production Part Approval Process (PPAP)

Littelfuse uses the Production Part Approval Process to confirm that the supplier understands the design specifications and has a process capable of producing product to meet these requirements, during an actual production run, at the quoted production rate. An industry requirement for all automotive suppliers, PPAP is being expanded to include all of our suppliers.

PPAP requirements vary based on the submission level assigned to a supplier and/or part number. The Littelfuse Supplier Development Engineer is responsible for designating submission level. The submission level is generally determined during the RFQ process, based on such factors as:

- Part criticality
- Experience with prior part submissions
- Supplier compliance with Quality System requirements
- Supplier expertise with the specific commodity

The basic requirements associated with each submission level are identified on the Part Submission Warrant. More specific detail is provided in a table in the PPAP procedure. A copy of this table follows.

		Submission Level				
<i>Requirement</i>		<i>Level 1</i>	<i>Level 2</i>	<i>Level 3</i>	<i>Level 4</i>	<i>Level 5</i>
1.	Design Record	R	S	S	*	R
	- for proprietary components/details	R	R	R	*	R
	- for all other components/details	R	S	S	*	R
2.	Engineering Change Documents, if any	R	S	S	*	R
3.	Customer Engineering approval, if required	R	R	S	*	R
4.	Design FMEA	R	R	S	*	R
5.	Process Flow Diagrams	R	R	S	*	R
6.	Process FMEA	R	R	S	*	R
7.	Control Plan	R	R	S	*	R
8.	Measurement System Analysis Studies	R	R	S	*	R
9.	Dimensional Results	R	S	S	*	R
10.	Material, Performance Test Results	R	S	S	*	R
11.	Initial Process Studies	R	R	S	*	R
12.	Qualified Laboratory Documentation	R	S	S	*	R
13.	Appearance Approval Report (AAR), if applicable	S	S	S	*	R
14.	Sample Product	R	S	S	*	R
15.	Master Sample	R	R	R	*	R
16.	Checking Aids	R	R	R	*	R
17.	Records of Compliance With Customer-Specific Requirements	R	R	S	*	R
18.	Part Submission Warrant (PSW)	S	S	S	S	R
	Bulk Material Checklist (see 4.1 above)	S	S	S	S	R

S = The organization shall submit to the customer and retain a copy of records or documentation items at appropriate locations.

R = The organization shall retain at appropriate locations and make available to the customer upon request.

* = The organization shall retain at appropriate locations and submit to the customer upon request.

Figure 1 - PPAP Submission Levels from PPAP 4th Ed. by AIAG

Use of the AIAG Bulk Materials Checklist is an acceptable substitute for a regular PPAP if it is applicable. Production part approval is always required prior to the first shipment of product.

After a supplier has been selected to make a Littelfuse part through the Request for Quote Process, the supplier will have to show data to prove that production parts can be made to the blueprint and consistently over time. Prior to receiving Production Purchase Orders from Littelfuse, the supplier will have to provide documentation to Littelfuse as specified in your Cover Addendum from the Supplier Terms and Conditions document.

In addition to the specified documentation, the supplier must also provide two sets of samples. The first set is a minimum of 10 pieces with a full dimensional layout to the drawing. Each piece will be uniquely identified, and a marked up drawing will be provided by the supplier labeling each measurement and the accompanying readings made. Once the samples are received, Littelfuse quality technicians will perform their own layout of the same sample parts, if needed, to verify the readings taken by the supplier.

The second sample is a full 8-hour production run using production machines and tooling. Capability studies (C_{pk}) for all critical characteristics on the drawing will be provided with the sample run. Littelfuse quality technicians will randomly select pieces from the lot and perform a dimensional layout. If the parts conform to drawing requirements, the documentation required is in hand, and the capability data is within specifications, the parts will be accepted. The Part Submission Warrant (PSW) will be signed, giving the supplier Littelfuse approval to run the parts as submitted. If there is no signed PSW, there is no approval from Littelfuse and parts cannot be shipped..

The PSW is reviewed by the Supplier Development Engineer or other Quality Department personnel and disposition is given, as follows:

- Production Approval: Indicates the part meets all specifications and requirements, and the supplier is authorized to ship production quantities.
- Interim Approval: Permits shipment of material for production requirements on a limited time or piece quantity basis, when supplier has clearly defined the root cause of the non-conformities preventing production approval and has prepared an interim approval action plan agreed upon by Littelfuse.
- Rejected: Prevents production quantities from being shipped because the submission, the production lot from which it was taken and the accompanying documentation do not meet customer requirements.

In addition, automotive OEM suppliers are required to provide an annual update to their PPAP, regardless of whether changes have occurred.

Special Characteristics

Special Characteristics are any product or process characteristics that affect safety or compliance with regulations, fit, function, performance or subsequent processing of product.

In accordance with the requirements of ISO/TS 16949, Special Characteristics shall be identified and specifically addressed in the Design-FMEA, Process-FMEA, Control Plans, Process Flows, Work Instructions and other associated documents. Suppliers are responsible to fully understand the usage of their product and also identify Special Characteristics, as appropriate.

Littelfuse expects suppliers to improve quality by systematically reducing variation of the special characteristics. Control plans document relevant information about the process followed to address sources of variation until a key characteristic is in statistical control and capable of meeting engineering specifications.

Key characteristics are typically identified by Littelfuse, and are noted on the design drawings.

For each of the key characteristics, the supplier identifies:

- Where in the process the characteristic is measured
- Control charts used
- Sample size and frequency of collection
- Maintenance of control charts
- Initial C_{pk}

A gage variation study is performed and results are documented, potential sources of variation are identified and controls are established to ensure that process parameters and settings do not change. This is documented in the key characteristic control plan. For these Characteristics, SPC data verifying a minimum 1.33 C_{pk} value or greater process capability,

Suppliers are also responsible for ensuring that relevant Special Characteristics are explained, understood and controlled by their sub-suppliers.

Statistical Process Control and Analysis

Suppliers are required to meet the process capability requirements as defined in the AIAG PPAP and SPC reference manuals. The supplier is responsible to ensure process capability and control requirements are documented in their control plan and that capability indices are achieved and improved throughout production.

Also, the supplier is required to continuously improve by reducing part-to-part variation and eliminating all waste.

The organization shall monitor process performance utilizing the appropriate statistical techniques (i.e. First-pass yield, SPC, etc.) in accordance with the most current edition of the AIAG Statistical Process Control manual.

Additional areas in which statistical techniques may be applied are as follows:

- Predictive maintenance programs
- Gage R&R studies
- Defect analysis
- Continual Improvement Processes

The results of the statistical techniques shall be documented and retained at the organization's location. This information shall be made available upon request by the Littelfuse team.

Requests for Deviation

Deviations from Manufacturing Specifications are never taken lightly by Littelfuse. Deviations can cause manufacturing problems, must be segregated, and many customers will not allow it. Nonconforming material must never knowingly be shipped to Littelfuse. However, suppliers can contact Littelfuse to request a deviation in some cases. Deviations will not be accepted for any nonconforming critical characteristics (as identified by the drawing) under any circumstances.

To request a deviation, the supplier complete Littelfuse form *E801-041 Request for Deviation*. The supplier must email or fax the form to their regional Supplier Development Engineer or Strategic Buyer. If the request is denied after consultation with the affected plant, the supplier will receive a communication from the SDE to that effect and the supplier will not be allowed to send the nonconforming material. If the request is approved by the affected plant the SDE will send a copy of the signed deviation form to the supplier. The supplier must include a copy of the signed deviation form with the packing list, and the packaging must be clearly marked as deviated material. Failure to comply with these steps will cause the material to be rejected.

E801-041 Request for Deviation

Approved Supplier List

There are 4 possible status outcomes for suppliers: Approved, Probation, Conditionally Approved and Disqualified. Only suppliers with Approved, Probation, and Conditionally Approved can be on the Approved Supplier List. The regional SDE and Strategic Buyers will meet semi-annually to review the performance of Probation and Conditionally Approved suppliers whose status is ready to change.

Any supplier who Littelfuse has been doing business with before January 1st, 2003 and have not had a risk assessment since that date are considered to be Approved, but should be scheduled for an risk assessment by Littelfuse when practical.

Notification of Changes

Any change to the products FORM, FIT, MATERIAL or FUNCTION must be authorized and approved by Littelfuse.

Any change to direct and indirect materials used in the previously approved part cannot be allowed until prior approval of Littelfuse, and this approval is contingent upon the supplier providing product validation data and new IPC declarations and possibly ICP Test data if the change involves a new raw material.

Performance Measurement – Supplier Scorecard

The Supplier performance is measured based on three (3) categories: On-time Delivery, Reject Rate and Responsiveness. For an explanation of the scoring calculations, see the Figure below.

Suppliers who maintain an overall rating of A or B are considered acceptable.

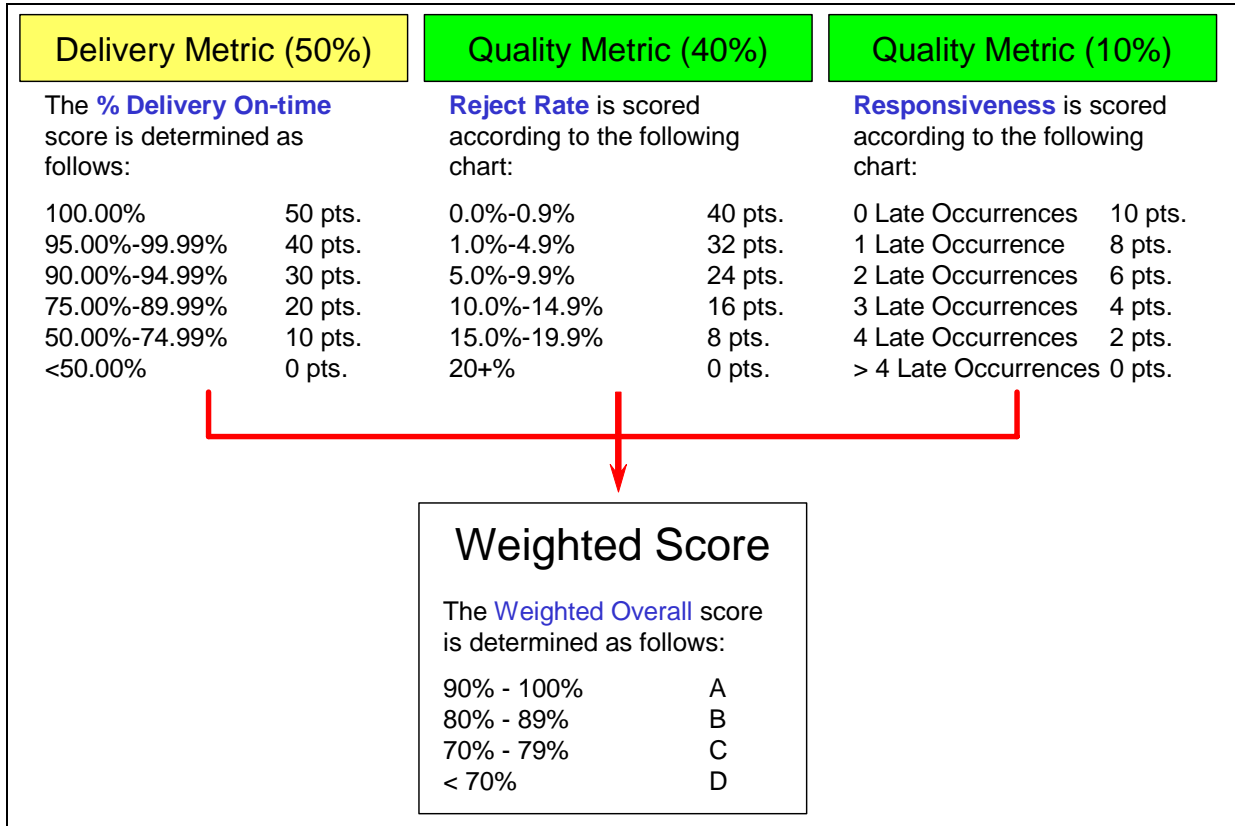


Figure 2 - Supplier Scorecard Criteria

Suppliers who have an overall rating of C are considered marginal. These suppliers will have to be monitored to make sure the C rating doesn't stay the same or get worse.

Suppliers who have an overall rating of D may be considered unacceptable. If a plan for improvement is not formalized to improve the overall rating, Littelfuse may elect to shift business to other suppliers.

On-time Delivery is calculated through an import into a Supplier Scorecard database from SAP data. Reject Rate and Responsiveness, are imported into the Supplier Scorecard database from Supplier caWeb data.

All Littelfuse suppliers will be expected to follow the same performance criteria.

All vendor scorecards for each month in the current calendar year will be viewed on the Littelfuse Business Center website at <http://www.littelfusebusinesscenter.com>

Disaster Recovery plan

Littelfuse require our suppliers to prepare contingency plans (e.g. utility interruptions, fire, flood, storm damage, temporary or limited data loss, chemical spills, air/water contamination, earthquakes, tornados, hurricanes, storm surges, complete data loss) to reasonably protect Littelfuse's supply of product in the event that a supplier's facility cannot continue to operate. Please refer to the Terms and Conditions document for further guidance regarding Force Majeure or acts of God. Plans should be reviewed on a frequent basis to ensure that the contingencies listed are still valid. Disaster Recovery Plans should not be confused with internal Health and Safety plans.

Supplier Corrective Actions – Supplier caWeb

Supplier caWeb is the Littelfuse Global Supply Chain's on-line Corrective and Preventative Action System. This system provides our global supply base with easy access to their concerns in real time and the ability to quickly respond and communicate containment actions with Littelfuse. It provides a structured and methodical approach to document permanent corrective actions by suppliers. It also provides a history in case the supplier's solution was not effective and needs to be reviewed. The benefit is an increase in customer satisfaction.

The Supplier caWeb system is used any time a supplier quality issue arises. Issues requiring corrective actions include, but are not limited to: late deliveries, non-conforming material, incorrect labeling, environmental testing issues, quantity discrepancies, and production line shutdowns.

This centralized system is accessible to all of our plants around the world and uses the 8D format for problem management. Suppliers are responsible for managing their own responses and entering them into caWeb by the due date. A 3D response is required within 24-48 hours of notification, a minimum 5D response is due within 10 calendar days of notification, and the full 8D response is due in 14 calendar days from notification. If the supplier accepts fault for a rejection, a Return Material Authorization (RMA) is expected within 24 hours of acceptance.

W571-7.4.0-014-4 - Supplier caWeb 4 Instructions

<http://caweb4.hginet.com/LFSupplyBase/Login.aspx?ReturnUrl=%2ffsupplybase%2fDefault.aspx>

Material Test Reporting

Littelfuse Inc. has implemented an internet-based storage system for controlling supplier quality data. This data includes Lot Traceability Certificates, Material Test Reports and Product Studies. The Material Test Report must contain the actual results of physical testing, measurements and/or analysis specified by the contract confirming compliance with all identified requirements. Blanket statements of material conformance without data to support it will not be accepted.

Suppliers can use our form *E571-132 Material Test Results* to submit the Material Test Report if they do not have an equivalent form of their own. If the supplier uses their own form, it must have the same information contained within as the Littelfuse form. Suppliers must submit the form with the packing slip of each shipment sent to a Littelfuse location.

The supplier should have a system capable of retrieving and submitting the requested Material Test Report within 24 hours of Littelfuse request.

E571- 132 Material Test Results

Supplier Lot Traceability

Suppliers are required to maintain lot traceability of all materials back to the point of origin in the event that suspicious material would need to be isolated and a positive recall required.

Each container of material must be physically marked with the following information.

- Part Number
- Lot Number
- Quantity
- Manufacturing Date
- Country of Origin (if necessary)

Where applicable, suppliers are required to submit an acknowledgment of understanding and compliance, as designated on the Littelfuse specifications and drawings.

The requirement is satisfied by:

- Faxing or emailing the completed acknowledgement to Littelfuse.
- Faxing or emailing all Certificate of Conformance thereafter, that list Lot Control Traceability container number.
- Physically identifying each container of material using the alphanumeric numbering scheme defined by Littelfuse. This identification consists of:
 - An alpha prefix assigned by Littelfuse
 - A six-digit date code of when the product was made (mmddyy)
 - The container number

E571-129 Supplier Lot Traceability Acknowledgment

Sub-supplier Control

Suppliers are required to monitor their sub-suppliers performance and to assure the quality of purchased parts and the management system of their sub-suppliers.

Suppliers are also recommended to perform their sub-suppliers quality management system development with the goal of the continuous improvement. Conformity with ISO9001:2000 and the RoHS Directive is the first step in achieving this goal. For Automotive suppliers, it is expected that suppliers will try to get their sub-suppliers in compliance with or certified to the ISO/TS16949 standard.

Continuous Improvement

Continuous improvement is fundamental to our business. At a minimum we require that our suppliers manage their quality systems to the same ISO/TS16949 or ISO 9000 standards that guide Littelfuse's quality efforts, and to demonstrate continuous improvement in areas that benefit the customer with regards to quality, price and service.

The supplier shall continually improve quality, delivery, cost and other services provided. To aid in fulfillment of this requirement the supplier's organization shall establish, monitor, prioritize, and act upon key performance objectives and targets. The objectives and targets should be established based upon (at a minimum) business plans, management systems, product quality, process capability, and customer satisfaction goals. Actions taken to regain previously sustained levels of performance are corrective actions, not continuous improvement.

Littelfuse may visit any supplier site to assess its continuous improvement programs and lean manufacturing practices, and make recommendations for improvement. In addition, Littelfuse may deploy personnel to focus on specific improvement issues.

Some common examples of Continuous Improvement programs are:

- Cost reduction projects (examples include use of Six Sigma, Lean Enterprise, Value Analysis/Value Engineering)
- Waste reduction projects (examples include use of Kaizen events, Setup Reduction, Value Stream Mapping, Standardized Work, Process Flow)
- Variation reduction projects (examples include use of Six Sigma, Standardized Work, Statistical Process Control)
- Factory Reorganization projects (examples include use of 5S Program, Single Unit or Cellular Manufacturing, Focused Factory, Kaizen events)
- Inventory reduction projects (examples include use of Kanban system, Single Unit or Cellular Manufacturing, Supermarket Pull)
- Yield improvement projects (examples include improvements to Equipment Uptime/Downtime, First Pass Yield, Rework reduction, Scrap improvement, On-Time Delivery)
- Non-manufacturing Process Improvement projects (examples include Customer Service, Accounting, Purchasing, Warranty returns, Quality control)

Certificate of Origin

With our company's increasing global presence, we are required by governmental law to submit, as well as gather, documentation on our suppliers and products' country of origin.

Many of the countries we ship and receive components from have customs/tariff regulations restricting the importation of goods from certain countries. This includes regulations limiting by country the amount of a particular commodity that can be imported, or favorable duty treatment for goods originating in specific countries.

To meet these requirements, Littelfuse requires that all suppliers shipping into Littelfuse global facilities submit a Certificate of Origin. One document can be completed for a series of part numbers as long as each part is listed with the country of origin—where the goods are manufactured, NOT purchased— listed beside it. Also, if the product(s) qualify for NAFTA, this should be indicated on the certificate as well.

To determine if Littelfuse has the correct Certificate of Origin information, review the Statement of Work tab in Supplier Workplace. Each part number is listed and contains a field for Certificate of Origin. If the field is blank or contains incorrect information, the field must be updated and a new Certificate of Origin must be submitted immediately. The new document should be faxed directly into Littelfuse's Electronic Documentation system at: +1 (847) 745-0991. (U.S. PHONE NUMBER)


To qualify for preferential duty rates, suppliers must submit newly completed forms annually, by October 1. In addition, suppliers must update and submit Certificate of Origin documentation when a change in country of origin occurs.

E571-127 Certificate of Origin

Packaging and Labeling

Suppliers must comply with all import/export and customs regulations for their home countries. Please refer to the Supplier Terms & Conditions documents for details regarding packaging and labeling requirements.

Diagram of a Littelfuse Purchase Order



(1)

Vendor number (2)

Please deliver to:
(3)

Send invoice to:
(4)

Page of

(5)

Purchase order (6)

PO number

LF Contact person / Telephone

LF Fax number

We require an order acknowledgment for the following items by fax:

(7) Line	LF Part No. (9)	Order qty. (10)	Unit (11)	Price per unit (12)	(13) Delivery Date	Total (14)
(8)	Description					

(15)

Note: If you can not meet Lead-Time and/or Quantity please notify Littelfuse immediately.

Note: Please include P.O. Number on all Documents.

Note: Supplies must conform to Littelfuse Quality Requirements and expectations of zero defects and 100% on time delivery. Product acceptance/rejections on C= 0.

Note: Supplier paperwork must match purchase order information to avoid delay in payment.

Note: Acceptance indicates compliance to all country MFG and sale, government environmental health & safety laws and regulations.

Purchase Order Diagram Key


- (1) Supplier name and supplier address
- (2) Vendor number
- (3) Delivery address
- (4) Invoice address
- (5) Date
- (6) Purchase order information, including purchase order (PO) number, Littelfuse (LF) contact person, phone number and fax number
- (7) Line item
- (8) Part description
- (9) LF part number
- (10) Order quantity
- (11) Unit
- (12) Price per unit
- (13) Delivery date: Date for receiving goods at "Delivery address". Suppliers should consider their lead time in addition to the shipping time to meet our delivery date
- (14) Total
- (15) Notes that the suppliers must comply with

Suppliers are required to make the PO acknowledgement via Littelfuse Business Center (website at <http://www.littelfusebusinesscenter.com>) after receiving POs from Littelfuse.



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Diagram of a Littelfuse Scheduling Agreement Release



(1)

Vendor information
 Vendor number : (2)
 Person responsible :

Please deliver to:
 (3)

Send invoice to:
 (4)

Scheduling agreement

Created by/Telephone:
 /

Order Date: (5)

Scheduling agreement number (6)

LF Buyer / Telephone (7)

LF Fax number

Vendor order acknowledgment: 122702

Line	LF Part No	Qty	Unit	Blanket	Value	
(8)	(9)			(10)	(11)	(12)
	(13)					
Total:						(14) 0.00 USD

(15)

Note: If you can not meet Lead-Time and/or Quantity please notify Littelfuse immediately.
Note: Please include P.O. Number on all Documents.
Note: Supplier must conform to Littelfuse Quality Requirements and expectations of zero defects and 100% on time delivery. Product acceptance/rejections on C= 0.
Note: Supplier paperwork must match purchase order information to avoid delay in payment.
Note: Acceptance indicates compliance to all country MFG and sale, government environmental health & safety laws and regulations.

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Z_S10_SQ_MEDRUCK
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Scheduling Agreement Diagram Key

- (1) Supplier name and supplier address
- (2) Vendor number
- (3) Delivery address
- (4) Invoice address
- (5) Date
- (6) Scheduling Agreement number
- (7) LF Buyer, phone number and fax number
- (8) Line item
- (9) Part description
- (10) LF part number
- (11) Order quantity
- (12) Unit
- (13) Price per unit
- (14) Total
- (15) Notes that the suppliers must comply with

Scheduling Agreements are currently not being displayed on Supplier Workplace. Acknowledgements to Scheduling Agreement Releases should be done manually back to the buyer listed in Area 7 on the Scheduling Agreement.

Diagram of a Littelfuse Drawing

Suppliers are requested to provide the parts in accordance with the drawing. Not all Littelfuse drawings will look exactly like this example, but all of the basic information will be the same.

(1)										
UNLESS OTHERWISE SPECIFIED, DIMENSIONS DO NOT INCLUDE PLATING.										
O		DENOTES CRITICAL CHARACTERISTICS. (2)								
CPK		DENOTES CPK DIMENSIONS, -MINIMUM CPK VALUE (3)								
ST		DENOTES A CHARACTERISTIC THAT PROVIDES AN INDICATION OF PROCESS PERFORMANCE. PROCEDURE FOR MEASUREMENT AND TRACKING TO BE DEFINED IN LITTELFUSE INSPECTION INSTRUCTIONS. (4)								
CP		DENOTES CP DIMENSIONS, -MINIMUM CP VALUE MUST BE WITHIN THE DIMENSIONAL LIMITATIONS SHOWN ON DRAWING AND INITIALLY LOCATED TO ALLOW FOR MAXIMUM TOOL LIFE. (5)								
NO		COMPONENT NO			DESCRIPTION			QTY/M		U/M
(6) BILL OF MATERIAL										
LTR		CDP IES TO			MTRL SPEC			FINISH		
1		9 1B			DRM			DATE		SCALE
2		10 1B			CHK			DATE		SUPER DRM
3		12 20			APPD			DATE		RAW STK WT
4		13 21			(7) TOLERANCE UNLESS OTHERWISE SPECIFIED			TWO PLACE DEC ±.01		FRACT 1/100
5		14 23								
6		15 33								
7		16 43			(8) TITLE			(9)		082114-001
8		17 53								
9		18 53			(10)			(11)		
CHK		Littelfuse (10)								
DRM		DEC PLAINES, ILLINOIS 604 (9)								

Diagram Key

- (1) The requirements specified by Littelfuse, including dimensions, material composition, characteristics, functions, colors, working environment, applicable standards, inspection instructions, acceptance criteria, packaging and labeling
- (2) The dimension marked with the symbol of "O" denotes critical characteristics
- (3) The dimension marked with the "CPK" need the Cpk control
- (4) The dimension marked with the "ST" denotes a characteristic that provides an indication of process performance. Procedure for measurement and tracking to be defined in Littelfuse inspection instructions.
- (5) The dimension marked with the "CP" need the Cp control. It must be within the dimensional limitations shown on the drawing and initially located to allow for maximum tool life
- (6) Bill of Material shows the details of the components
- (7) Tolerance
- (8) Littelfuse part name
- (9) Littelfuse part number
- (10) Revision
- (11) Details of revision history

Littelfuse SDE Contact Information

If you have any questions or concerns regarding this manual, or any other Littelfuse policies, you can contact your regional SDE using the contact information listed below:

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