



ENGINEERING RESOURCE

Electronic Product Development Requirements Brief

A printable template for defining an electronic product, engineering engagement, prototype, adapter, or subsystem before detailed design begins.

Prepared by	Logic Tech Labs Engineering
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Use	Project preparation and technical review

This resource is a practical starting point, not a substitute for device documentation, project-specific engineering analysis, safety review, regulatory assessment, or formal certification.

01 | CONTEXT

Product purpose and project baseline

Write concise, measurable statements. Mark unknown values as TBD and assign an owner and decision date.

Project / product name	Working title, internal identifier, and document revision
Purpose	What problem does the product solve, for whom, and in what operating context?
Primary use cases	Normal operating scenarios and the user or connected system
Out of scope	Functions, markets, variants, or responsibilities intentionally excluded
Existing baseline	Available boards, schematics, HDL, firmware, software, prototypes, and prior evidence
Target milestone	Architecture, proof of concept, prototype, validation, manufacturing release, or support
Stakeholders	Technical owner, approver, manufacturing contact, end user, and external dependencies
Confidentiality	Information restrictions, NDA status, export controls, customer-identifying material

02 | FUNCTION

Functional behavior and performance

Core functions	Numbered statements describing what the system shall do
Inputs	Sensors, commands, power, data, triggers, and configuration sources
Outputs	Data, control, actuation, indicators, files, and host interfaces
Performance	Sample rate, bandwidth, latency, accuracy, resolution, throughput, timing, or compute targets
Operating modes	Startup, idle, active, triggered, calibration, update, safe, and service modes
Fault behavior	Detection, reporting, recovery, safe state, retry, and data-integrity expectations
Startup / shutdown	Sequencing, time limits, configuration source, and deterministic state
Acceptance criteria	Measurable conditions that demonstrate the intended function

03 | INTERFACES

Electrical, data, timing, and integration requirements

Power input	Voltage range, current, connector, protection, grounding, sequencing, and transient limits
Digital interfaces	Protocol, connector, voltage, direction, speed, clocking, termination, and pin map
Analog interfaces	Range, bandwidth, impedance, common mode, protection, accuracy, and calibration
Clock / trigger	Source, frequency, jitter, level, fan-out, synchronization, latency, and timestamping
Host / network	USB, Ethernet, UART, PCIe, storage, API, packet format, security, and update path
Mechanical interface	Board outline, holes, keep-outs, connector positions, enclosure, cable, and service access
External dependencies	Third-party boards, components, IP, software, services, fixtures, and licenses
Interface evidence	Datasheets, connector drawings, ICDs, example data, reference designs, and known-good units

04 | CONSTRAINTS

Environment, safety, compliance, and manufacturing

Environment	Temperature, humidity, altitude, vibration, shock, dust, liquids, radiation, and indoor/outdoor use
EMC / signal integrity	Emissions, immunity, grounding, shielding, isolation, cabling, and controlled interfaces
Safety	Hazards, accessible energy, high voltage, temperature, moving parts, fault containment, and warnings
Regulatory targets	Applicable markets, standards, laboratory tests, documentation, and responsible party
Reliability / lifetime	Duty cycle, mission duration, service life, maintenance, replaceable items, and storage
Manufacturing volume	Prototype quantity, pilot quantity, recurring volume, variants, and production location
Supply chain	Approved vendors, restricted parts, lifecycle, substitutions, lead time, and cost drivers
Test and programming	Production test coverage, fixtures, limits, calibration, serialization, and traceability

05 | DELIVERY

Verification, release, schedule, and responsibilities

Verification strategy	Analysis, simulation, testbench, inspection, laboratory test, field trial, and acceptance witness
Required evidence	Reports, raw data, screenshots, logs, timing reports, calibration, and review records
Deliverables	Schematics, PCB files, BOM, HDL, constraints, firmware, software, documents, prototypes, fixtures
Release package	Source and artifact versioning, build instructions, programming, configuration, known limitations
Schedule	Decision dates, long-lead items, design reviews, prototype, bring-up, validation, and release
Budget constraints	Engineering, tooling, components, fabrication, assembly, certification, and contingency
Responsibilities	Customer, Logic Tech Labs, suppliers, test laboratories, manufacturer, and approval authority
Open decisions	TBD item, owner, required input, impact, and decision deadline

06 | APPROVAL

Requirements review and change control

Use this page to record the agreed baseline. Changes after approval should identify impact on scope, schedule, cost, interfaces, and verification.

Major risks	Technical, schedule, procurement, integration, compliance, and evidence risks
Assumptions	Statements currently treated as true and how each will be confirmed
Dependencies	Information, hardware, software, approvals, or deliveries required from others
Known limitations	Accepted exclusions, temporary constraints, and deferred verification
Review outcome	☐ Approved ☐ Approved with actions ☐ Rework required

Prepared by		Date	
Technical review		Date	
Approval		Date	

Suggested next step: attach interface documents, sketches, existing design files, and a list of TBD decisions to this brief before the architecture review.