Agriculture Display Design Checklist

10 customer questions to de-risk displays for agricultural machinery, field instrumentation, and outdoor control systems

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How to use the checklist

For each question, capture the application context, the display requirement, the acceptance evidence, and any residual risk. Escalate any unknown response where the display affects safety, uptime, operator decision-making, regulatory evidence, or customer experience. Escalate any unknown response where the display affects vehicle operation, dosing, navigation, automation, safety alerts, or field productivity.

#	Customer design question	Why this matters	Evidence to request / acceptance criteria	Status / notes
1	**What field task does the display support: guidance, dosing, monitoring, automation, or diagnostics?**	Agricultural HMIs often combine safety, productivity, and equipment-control information.	Task analysis; critical data list; operator workflow; error consequence review.	OK / Gap / N/A
2	**What outdoor exposure is expected: sunlight, rain, mud, dust, chemicals, shock, and vibration?**	Agricultural environments are severe and highly variable across seasons.	Environmental profile; IP/IK target; vibration/shock requirement; chemical and contamination assumptions.	OK / Gap / N/A
3	**What sunlight readability and night operation are required?**	Operators may work in direct sun, twilight, and night harvesting or spraying.	Brightness/dimming target; anti-glare/optical bonding decision; night-mode review; viewing-angle test.	OK / Gap / N/A
4	**Will the touch interface be used with gloves, wet hands, mud, or vehicle motion?**	Field conditions can cause missed touches and accidental activation.	Glove/wet/contamination test; physical controls; debounce/confirmation logic; mounting ergonomics.	OK / Gap / N/A
5	**What power conditions apply from batteries, alternators, and vehicle wiring?**	Agricultural vehicles can produce voltage variation, transients, and electrical noise.	Power input range; surge/transient plan; grounding/shielding strategy; boot/restart behaviour.	OK / Gap / N/A
6	**What mechanical mounting and operator line-of-sight constraints exist?**	Vehicle displays must avoid obstructing visibility while remaining reachable and readable.	Mounting drawing; vibration-resistant bracket; cable routing; reach and viewing-envelope study.	OK / Gap / N/A
7	**How will the display communicate with vehicle, sensor, GPS, or implement systems?**	Integration failures can undermine control and data quality.	Interface map; protocol support; latency/update-rate target; failover and data-loss state.	OK / Gap / N/A
8	**What cleaning and seasonal storage conditions must be considered?**	Equipment may be pressure-washed, stored cold, or unused for long periods.	Cleaning instructions; storage temperature/humidity; condensation plan; seal inspection guidance.	OK / Gap / N/A
9	**What lifecycle and spare strategy supports long equipment service lives?**	Agricultural machinery often remains in use beyond normal consumer electronics cycles.	PCN/EOL plan; replaceable module approach; spares stock; documentation for future repairs.	OK / Gap / N/A
10	**What field validation proves the display is ready?**	Bench tests should be followed by trials in real vehicles and weather.	Field trial plan; readability test; vibration/contamination checks; operator feedback; acceptance report.	OK / Gap / N/A

Recommended review outputs

·Display subsystem requirements specification: optical, mechanical, electrical, environmental, touch, software-interface, mounting, and lifecycle requirements.
·Risk and application traceability: each display-related risk or customer-experience issue linked to a design control and verification method.
·Evidence pack: drawings, interface specifications, environmental assumptions, test reports, supplier declarations, support/lifecycle plan, and controlled change documentation.

Reference prompts for the project team

·Confirm all customer, site, and regulatory requirements before final specification or quotation.
·Define testable acceptance criteria for every requirement that affects readability, touch operation, reliability, safety, or maintainability.
·Record any assumptions on duty cycle, lighting, environmental exposure, mounting, electrical interfaces, content, and long-term availability.
·Review the final display selection jointly with mechanical, electrical, software, operations, service, and commercial stakeholders.

Use this checklist for control-room, field, kiosk, monitoring, inspection, and process-interface displays in oil, gas, and energy applications. This is a practical customer-discovery guide. Its is not a substitute for project-specific engineering, safety, legal, or compliance assessment, in conjunction with discussion with CDS engineers and/or technical sales team.

For more information or to discuss your project and requirements please contact our technical sales team.