Capability Brief: Box-Build, System Integration & Wire/Cable Harnessing

PCBA + harness + mechanical assembly for industrial, EV, and power electronics programs

A finished electronic product is rarely a board on its own — it is a PCBA in a harness, in an enclosure, with mechanical fit, safety isolation, and end-product test. Indic's box-build practice integrates PCBAs, in-house cable and wire harnesses, mechanical assemblies, and EOL testing under one operating discipline — eliminating the hand-offs that fragment system-level quality.

1. Custom Box-Build & System Integration

For OEMs running build-to-order and configure-to-order programs where system-level integration discipline decides outcome.

Build-to-Order & Configure-to-Order Box-Build

Variant-aware kitting and routing · MES-bound bills of process per configuration · First-article inspection per variant · Configuration logic in SAP S/4HANA driving floor effectivity.

Builds: Box-Build · Certifications: IPC-A-610 Class 2/3, ISO 9001

Mechanical Assembly & Enclosure Integration

Metal injection molding, plastic injection molding, sheet metal, extrusion, and die-casting via vetted Indian supplier network · Enclosure fit, strain relief, and service-loop discipline · Mechanical FAI per program.

Builds: Box-Build + Sub-Assembly · Certifications: IPC-A-610

System-Level Functional & EOL Test

System-level FCT · EOL inspection · Hi-pot per IEC 62368-1 where applicable · Per-serial test records bound to MES.

Builds: Box-Build · Certifications: IEC 62368-1, IPC-A-610

IN PRACTICE

For a first-batch mass-production transfer to a new overseas lighting customer with no end-tester available, Indic compensated with cross-functional ownership, layered process audits, and expanded first-article checks — zero rejections, 100% customer satisfaction, follow-on awards.

2. Wire & Cable Harnessing

For variant-heavy programs where harness reliability decides end-product yield and shipping defect rates.

Multibranch Harnesses & Cable Assemblies

Multibranch harnesses up to ~2,500 points · Automotive-grade crimping with crimp-force monitoring · 3D harness assemblies · Today: built via vetted near-site supplier with full traceability and 100% electrical testing.

Builds: Harness · Certifications: IPC/WHMA-A-620 Class 2 (Class 3 for aerospace on request)

Optical-Fiber & Hybrid Looms

Optical-fiber harnesses · Hybrid fiber + electrical looms · 100% continuity and hi-pot testing · Bend-radius and strain-relief discipline.

Builds: Harness · Certifications: IPC/WHMA-A-620 Class 2/3

Process Quality Controls (Welding, Crimping, Potting)

Ultrasonic welding · Crimp-force monitoring per cycle · Potting / overmolding · Low-pressure molding (LPM).

Builds: Harness + Sub-Assembly · Certifications: IPC/WHMA-A-620

IN PRACTICE

Indic's Phase II commitment brings harness manufacturing fully in-house — a ~1,500 sq ft dedicated cell inside the 80K+ sq ft expansion, eliminating outsource hand-offs and consolidating IPC/WHMA-A-620 Class 2 discipline (Class 3 on request) under Indic's direct quality control.

EV / Power Assembly Integration + Cross-Segment Capabilities

Hi-pot test, certifications, and supplier ecosystem supporting Indic's box-build practice

3. EV / Power Assembly Integration

For EV powertrains, chargers, and power-electronics programs where PCBA + harness + box-build must converge under hi-pot certification windows.

High-Voltage Power Assemblies

HV Battery Junction Box (BJB) · Battery Disconnect Unit (BDU) · Power Distribution Unit (PDU) · HV AC and DC connectors integrated with harness sub-assemblies.

Builds: Box-Build + Harness · Certifications: AEC-Q100/Q200, IATF 16949

Charger & Power-Electronics Integration

On-Board Charger (OBC) · 3 kW 3-wheeler EV charger · DC Fast Chargers · EVSE charging infrastructure with parallelized PFC top/bottom SMT and concurrent box-build.

Builds: PCBA + Box-Build · Certifications: AEC-Q, ARAI certified (3 kW), IEC 61851

Hi-Pot Test per IEC 62368-1

Safety isolation verification across power-electronics box-builds · Audit-ready hi-pot records bound to serial · Workmanship per IPC-A-610 Class 2 or Class 3 depending on field-reliability requirements.

Builds: Box-Build · Certifications: IEC 62368-1, IPC-A-610 Class 3 where applicable

IN PRACTICE

On a 3 kW 3-wheeler EV charger program facing an ARAI certification window, Indic parallelized PFC top/bottom SMT and started box-build before all boards were complete — delivering a 4-day assembly cycle (vs. a legacy ~2-week cycle) and removing import dependency through localized component sourcing.

4. Certifications & Standards Supporting Box-Build & Harnessing

Workmanship & Process Standards

IPC/WHMA-A-620 Class 2/3 (Class 3 for aerospace on request) · IPC-A-610 Class 2/3 · ANSI/ESD S20.20 · IEC 62368-1 (hi-pot)

Segment-Specific Standards

IEC 62368-1 (hi-pot for power electronics) · IEC 61851 (EV charging) · IEC 62196-2 (charging plugs) · AEC-Q100/Q200 · ARAI readiness · PPAP / APQP

Quality & Management Systems

ISO 9001:2015 (foundational QMS) · IATF 16949:2016 (automotive) · ISO 14001 · ISO 27001 · ISO 45001

Substance, Environmental & ESG

RoHS · WEEE · REACH · China RoHS · Prop 65 · TSCA · UN Global Compact · EcoVadis · D&B ESG · Scope 1+2 tracked

5. Supplier Ecosystem & Supporting Capabilities

Box-build mechanical, enclosure & harnessing supply

Metal injection molding, plastic injection molding, sheet metal, extrusion, die-casting via vetted Indian supplier network · In-house harness cell (Phase II, 2026): IPC/WHMA-A-620 Class 2/3, ultrasonic welding, crimp-force monitoring

IT, traceability & change-control stack

SAP S/4HANA (ERP, change masters with effectivity) · SAP Digital Manufacturing (MES, serial-bound auto-scan WIP) · SAP DMS (controlled docs, approval workflow) · CalcuQuote · Same-day ECN disposition

Component sourcing & AVL governance

Direct accounts with Arrow, Avnet, Mouser, Digi-Key · Turnkey / consigned / partial sourcing · PCN, EOL, NCNR via Compliance Risk Manager · Alternates with package, fit, thermal, performance validation

Capacity, cleanroom & ramp infrastructure

292K sq ft total · Phase II: 80K+ sq ft expansion, Class 10,000 cleanroom, 7 dual-lane + 1 NPI SMT lines, ~225% capacity lift · Phase III adjacent to Foxconn India, Q4 2026 kickoff

Schedule a discovery call at **indicelectronics.com** · or email **info@indicelectronics.com** to discuss your box-build or system-integration program.