

— DIAGNOSTIC INTELLIGENCE

DiagAI Technical Brief

Multi-agent automotive diagnostic intelligence covering ISO 14229 UDS, OBD-II, and J1939 with on-premise data containment.

8 Specialist Diagnostic Agents

ISO 14229 UDS · OBD-II · J1939

MDF4 Signal Cross-Examination

Fully On-Premise & Air-Gapped

Intermittent vehicle faults elude static decision trees.

Modern vehicle networks log massive telemetry volumes, yet isolating intermittent root causes remains slow and labor-intensive.

DATA OVERLOAD

Dense Freeze Frames

Diagnostic trouble codes capture thousands of freeze-frame parameters, overwhelming manual triage during rapid prototype testing.

INTERMITTENT SIGNALS

Uncorrelated Transients

Static troubleshooting trees fail to correlate transient sensor drops or bus voltage spikes across unrelated sub-modules.

PRIVACY BOTTLENECK

Cloud Privacy Restrictions

Sending sensitive diagnostic trouble codes and telemetry to public cloud AI APIs violates OEM data classification and confidentiality mandates.

Collaborative multi-agent diagnostic intelligence.

DiagAI routes fault codes, freeze frames, and high-frequency MDF4 traces through eight specialist agents deployable fully on-premise.

DOMAIN SPECIALIZATION

Collaborative Agent Reasoning

Eight specialist agents cross-examine telemetry simultaneously. Rather than a generic summary, DiagAI returns ranked root-cause hypotheses with exact signal evidence.

PROTOCOL AWARENESS

Native UDS & J1939 Context

Understands ISO 14229 UDS Service \$19 (ReadDTC), Service \$22 (ReadDataByIdentifier), snapshot records, and J1939 parameter groups natively.

On-Premise Guarantee: Runs against local LLM runtimes (Ollama, LM Studio) on your own hardware with isolated per-OEM knowledge retrieval indices.

— EIGHT AGENTS

Eight specialized diagnostic domain agents.

AGENT IDENTIFIER	DIAGNOSTIC ENGINEERING DOMAIN	TARGET PROTOCOLS
MisfireAgent	Combustion stability, cylinder-level anomaly detection, ionization & crank speed	ISO 14229 UDS, OBD-II
FuelAgent	BSFC / BMEP evaluation, long-term fuel trim drift, injector flow deviation	OBD-II, SAE J1939
WLTPAgent	Emissions compliance verification, cold-start drive-cycle simulation	OBD-II, CAN
DFCAgent	Diagnostic Fault Code interpretation, DTC freeze frames, OEM-specific DFC logic	ISO 14229 UDS
IUPRAgent	In-Use Performance Ratio tracking, OBD-II monitor readiness validation	OBD-II
GearAgent	Transmission shift-hunting, clutch pressure anomalies, ratio mismatches	CAN, LIN
DrivabilityAgent	Tip-in/tip-out hesitation, surge analysis, torque model divergence	CAN, UDS
StartWarmupAgent	Engine start fuelling, catalyst heating profiles, thermal stabilization	CAN, OBD-II

Per-OEM RAG isolation and air-gapped reasoning.

DiagAI operates inside your network with zero external data egress.

PER-OEM INDEX ISOLATION

Independent Knowledge Bases

Every organization's technical manuals, past diagnostic case notes, and proprietary DTC tables are partitioned into isolated local vector databases.

LOCAL INFERENCE RUNTIMES

LM Studio & Ollama Integration

Supports models such as DeepSeek and Llama served locally over private loopback endpoints, enabling fully air-gapped test cell deployments.

What we do not claim.

Honest pilot positioning without unsubstantiated scores.

PILOT STATUS

In Pilot Evaluation

DiagAI is currently in pilot evaluation with select Tier-1 powertrain engineering teams. We do not claim universal industry validation or deploy unverified benchmarks.

NO INVENTED METRICS

Zero Fabricated Scores

We publish no accuracy figure and no overall score. Diagnostic accuracy is evaluated directly on customer test cases under defined test conditions.

How to evaluate DiagAI on your diagnostic data.

STEP 1

Import DTC Freeze Frame

Load an anonymized UDS freeze frame or CAN bus log. Confirm protocol decoding across services \$19 and \$22.

STEP 2

Deploy Local Model

Connect DiagAI to a local Ollama or LM Studio model instance. Observe multi-agent cross-examination across telemetry.

STEP 3

Review Ranked Hypotheses

Evaluate the ranked root-cause recommendations against known historical test bench failure resolutions.

DIAGNOSTIC PILOT

Request a Private DiagAI Evaluation Demo

contact@vehiclelab.in · <https://vehiclelab.in/docs/diagai-brief>