MOORE AUTOMATION TECHNICAL REFERENCE

DeltaV Architecture for a Greenfield HEFA SAF Facility

A concise engineering and procurement brief for mapping HEFA process areas to DeltaV control, safety, I/O and lifecycle-support layers.

100,000 t/y	35,000 t/y	2028	HEFA
Target SAF capacity	Target by-products	Target first fuel	Conversion pathway

Project context

The referenced European greenfield project is designed around hydroprocessed esters and fatty acids (HEFA), using residual fats and greases as feedstock. The publicly described automation scope includes the DeltaV distributed control system, DeltaV safety instrumented system, fire-and-gas functions, AMS Device Manager and distributed CHARMs.

Public project information does not disclose a final hardware bill of material. Every model in this brief is therefore a procurement reference only. Exact assemblies, system release, firmware, redundancy, carriers, I/O termination and certification must be verified against the approved project documentation.

Four operating areas and their automation layers

01 Hydrotreating and deoxygenation

Signal: 4-20 mA/HART, RTD and thermocouple loops

DeltaV layer: AI, AO and TC/RTD CHARMs

Engineering focus: High-pressure control and catalyst-bed temperature profiles

02 Residual-fat pretreatment

Signal: Pump status, tank level and flow

DeltaV layer: DI CHARM plus conventional AI/DO

Engineering focus: Feedstock conditioning, dosing and stable flow to hydroprocessing

03 Hydrogen production

Signal: Critical pressure loops and package communications

DeltaV layer: PROFIBUS or Ethernet with PK, SQ or SX nodes

Engineering focus: Package integration and continuous hydrogen circulation

04 Emergency shutdown and F&G;

Signal: Safety-rated trips, detectors and solenoids

DeltaV layer: DeltaV SIS, safety I/O and F&G; architecture

Engineering focus: Independent shutdown logic, voting and final-element action

Control-node selection is an engineering decision

SX, SQ and PK controllers serve different capacity and integration roles. The family name is never sufficient evidence for interchangeability.

SX

High-capacity enterprise node

Reference: KJ2005X1-BK1 / 12P4688X052 / SE3007

Verify assembly, release, firmware, carrier and redundant partner.

SQ

Scaled S-series process node

Reference: KJ2005X1-SQ1 / 12P6383X052

Verify capacity, licensing, backplane position and redundancy.

PK

Standalone modular-skid node

Reference: DeltaV PK Controller family

Verify protocols, local I/O, database synchronization and plant integration.

Post-commissioning lifecycle model

01
Early operation

Build diagnostic and calibration baselines with AMS Device Manager.

>

02
Predictive maintenance

Trend loop stability, device health and control-valve degradation.

>

03
Supply readiness

Map critical spares, lifecycle exposure and verified stock before shutdowns.

Procurement reference matrix

DCS CONTROLLERS

KJ2005X1-BK1 SX; KJ2005X1-SQ1 SQ

Verify: Assembly, firmware, DeltaV release, carrier and redundancy

CHARM I/O

KL2101X1-BA1; KL2101X1-BB1

Verify: CIOC generation, carrier, revision and system release

DISTRIBUTED CHARMS

KL2103X1-BA1; KL4202X1-BC1

Verify: Housing, terminal type, IS or non-IS application

TEMPERATURE I/O

KJ3224X1-BA2

Verify: Input type, terminal block, carrier and channel configuration

SIS AND POWER

SLS1508 / CSLS; KJ4110X1-EA1

Verify: Safety architecture, firmware, certification, voltage and load

FIELD MAINTENANCE

TREXLHPNAWS1S AMS Trex

Verify: Communication module, licensing, accessories and service condition

ABOUT THE AUTHOR

Frida supports end users, distributors, contractors and system integrators with hard-to-find industrial automation spare parts. She helps plants build stronger RFQs with verified part numbers, stock, lead times, technical documents, product photos and pre-shipment inspection.

TECHNICAL PARTS ENQUIRY

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