Siemens 6ES7405-0KA02-0AA0

01 Rack supply and backup architecture

Siemens 6ES7405-0KA02-0AA0 powers the S7-400 rack from a DC feeder. Its separate backplane supply rails support the controller and module load, with optional battery backup and dedicated fault indicators.

DC feeder + PE — **PS 405 conversion** — **5 V / 24 V backplane** — **CPU and rack modules**

Physical interface and configuration

The standard PS 405 10A converts the permitted DC input to the two S7-400 secondary rails. Module loads must be assigned to the correct rail; unused capacity on one rail cannot automatically cover an overload on the other. Its standard designation must not be confused with the separate PS 405 10A R redundant variant.

Electrical reference and operating boundary

The standby switch drives the output voltages to zero through the control loop and does not disconnect the incoming power. The three-pin feeder connector must not be inserted or removed under power. The front cover protects the battery connections and controls during operation, while the rack connector and supply position remain part of the installation check.

State, timing and verification

Two optional batteries support the backup arrangement rather than sustaining normal rack power. The BATT.INDIC selection determines which battery conditions are monitored; BAF concerns the backup voltage on the backplane, while BATT1F and BATT2F identify individual battery problems. A reset is meaningful only after the actual fault and expected monitoring mode have been reconciled.

Can the backup batteries in 6ES7405-0KA02-0AA0 keep the entire rack running through a long feeder outage?

No. Battery-backed retention and normal rack power are different functions. Evaluate process continuity separately from the backup arrangement and the brief input-interruption buffering capability.

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02 Input, rail and protection limits

Rated DC input	24 / 48 / 60 V DC
Static input range	19.2–72 V DC
Dynamic input range	18.5–75.5 V DC
Rated input current	4.0 / 2.0 / 1.6 A at 24 / 48 / 60 V
Inrush peak	18 A
Inrush half-value width	20 ms
Logic-rail rated voltage	5.1 V DC
Logic-rail capacity	10 A
Auxiliary-rail rated voltage	24 V DC
Auxiliary-rail capacity	1 A
Input power	95 W
Power loss	20 W
Mains interruption buffering	More than 20 ms, repetition interval 1 s

Separate-current calculation

Sum each installed module’s 5 V demand and 24 V demand independently. Keep allowances for the actual configuration; the 10 A designation belongs to the logic rail, not the auxiliary rail.

Feeder transient planning

The 18 A inrush peak and 20 ms half-value width describe a transient. Coordinate feeder impedance and protection so normal energization does not create avoidable supply collapse.

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03 Monitoring and service boundaries

Power-off backup current	100 µA maximum
Optional backup batteries	2 × lithium AA, 3.6 V; use approved battery specification
Battery-monitor selection	OFF / 1 BATT / 2 BATT
Protective separation	Yes, according to IEC 61131-2
Protection class	Class I with protective conductor
Overvoltage category	II
Pollution degree	2
Secondary-to-PE test	700 V DC
Primary-to-secondary/PE test	2200 V DC
Feeder connection	3-pin; 3 × 1.5 mm² stranded with ferrules
Standby function	Outputs to 0 V; no feeder disconnection

Backup versus availability

A valid battery arrangement can preserve supported retained information while the rack is unpowered. It does not establish continued I/O operation or process availability.

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04 Configuration and diagnostic decisions

DC-fed S7-400 racks

Convert a supported plant DC feeder into the rack’s logic and auxiliary supply rails.

Battery-supervised controller systems

Monitor the installed backup configuration and distinguish battery-specific faults from low backplane backup voltage.

Rail-specific load planning

Allocate each installed module’s demand to the appropriate 5 V or 24 V rack capacity.

Structured power-fault diagnosis

Use the combination of INTF, rail and battery indicators to direct checks before changing hardware.

Standby boundary

A zero output selected by standby does not prove the feeder connector is de-energized. Use the installation’s isolation procedure before handling it.

Backup indication

A delayed battery alarm after disconnection can reflect internal capacitance. Do not judge the monitoring function from an immediate observation alone.

Restart assessment

If the corrected overload does not permit restart after a few seconds, the applicable recovery guidance calls for removing input power for five minutes before retesting this module.

Would exchanging 6ES7405-0KA02-0AA0 for a PS 405 10A R preserve the same system configuration automatically?

No. Standard and redundant variants have different intended roles. Verify the complete article number, rack arrangement and redundancy design before accepting a substitution.

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05 Replacement scope and acceptance evidence

Lifecycle and replacement scope

6ES7405-0KA02-0AA0 has an unconfirmed current manufacturing and support phase. Its standard PS 405 10A configuration is distinct from the redundant PS 405 10A R version. Retain the DC feeder class, rack arrangement, separate output-rail budgets and battery-monitoring configuration. Do not assume a standard module has the redundant version’s operating role.

Does moving 6ES7405-0KA02-0AA0 to standby make its feeder connector safe to unplug?

No. Standby acts on the output control loop without disconnecting incoming power. Isolate and secure the external feeder and verify the electrical state before handling the three-pin connector.

Why can 6ES7405-0KA02-0AA0 report BAF even when both batteries look correctly installed?

BAF monitors the backup voltage on the backplane, so other causes include an external backup-path problem, overload or short circuit. Compare individual battery indications with the complete backup circuit rather than replacing batteries solely from BAF.

A useful LED sequence

Record INTF, both rail indications and battery indicators before reset. The combination differentiates missing feeder, output standby, rail overload and backup issues more effectively than a single LED.

Technical basis

Siemens S7-400 Automation System Module Data, A5E00850736-AJ. The PS 405 10A ratings apply to 6ES7405-0KA02-0AA0. The 0KA02 standard module must be distinguished from the 0KR02 redundant version; common controls apply only where fitted.

Other Siemens product references

Siemens 6AV2124-0GC01-0AX0

Siemens 6EP1336-3BA00

Siemens 6EP1437-2BA20

Separate product references; no substitution or compatibility is implied.