Siemens 6SL3040-1MA00-0AA0

01 Control architecture and retained identity

Siemens 6SL3040-1MA00-0AA0 provides central open-loop and closed-loop control for SINAMICS S120 Line Modules and Motor Modules. Its PROFIBUS interface connects the drive arrangement to the supervisory controller.

Retained project + card — **CU320-2 DP control** — **DRIVE-CLiQ topology** — **Configured drive response**

Drive topology and retained functions

The CU320-2 DP controls one or more Line Modules and Motor Modules through the configured SINAMICS architecture. DRIVE-CLiQ links, the option slot and the retained drive project define the connected functions; physical connectors alone do not establish compatibility or licensed capabilities. This control unit can be used from firmware version 4.3, subject to the actual system configuration.

Input-group reference potentials

The independent digital-input groups use M1 or M2 as their reference potentials. Joining either reference to electronics ground allows a shared supply reference but removes that group’s electrical isolation. The bidirectional terminals already share electronics ground and must be assigned individually as inputs or outputs; their faster input behavior is distinct from the ordinary digital inputs.

Addressing and diagnostic states

The PROFIBUS address can be selected by rotary switches or by parameter when the switches select parameter-based addressing. A changed address takes effect after POWER ON. The LAN interface is intended for local service access, while operating-state LEDs distinguish readiness, cyclic communication and option-board conditions. A ready indication therefore does not by itself demonstrate correct setpoint exchange or licensed operation.

Does a brief 24 V interruption leave the digital outputs of 6SL3040-1MA00-0AA0 unchanged?

No. The outputs deactivate during the interruption. Test the permitted control-system recovery and resulting drive command sequence under an approved procedure before relying on automatic continuation.

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02 Electrical and terminal-group limits

Independent digital inputs	12, isolated in reference groups
Bidirectional digital I/O	8, non-isolated
DRIVE-CLiQ ports	4, X100–X103
PROFIBUS interface	1, X126, 9-pin Sub-D
Local service LAN	1, X127; 10/100 Mbit link
Serial interface	1, X140, RS232 with USS support
Option slots	1
Electronics input	24 V DC; 20.4–28.8 V
Electronics current	1.0 A maximum, excluding DRIVE-CLiQ and digital outputs
Total input current	6.5 A maximum including connected outputs
Power loss	24 W maximum
Combined output-current limit	5.5 A
Supply connector loop-through	20 A maximum; 15 A under UL/CSA
Input high threshold	15–30 V DC, including ripple
Input low threshold	−3 to +5 V DC, including ripple
Input current	3.5 mA typical at 24 V DC

Per-point ratings do not close the power budget

Four half-ampere outputs use a full two-ampere group allocation. Check the second group and DRIVE-CLiQ consumers against the combined limit rather than adding individually permissible loads without a total.

Ground-reference design decision

A jumper may make a formerly floating input group work, but it changes galvanic separation. Diagnose the intended return circuit first and document any approved grounding change.

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03 Communication and event interfaces

Ordinary input delay	50 µs rising / 150 µs falling, typical
Fast input delay	5 µs rising / 50 µs falling, typical
Output current per point	0.5 A maximum
Output current per terminal group	2 A maximum across four outputs
Output high voltage	Greater than X124 supply minus 2 V under load
Output off-state leakage	Below 0.5 mA
Output switching frequency	100 Hz resistive / 0.5 Hz inductive / 10 Hz lamp maximum
Lamp load	5 W maximum
Digital I/O cable length	30 m maximum
DRIVE-CLiQ cable length	100 m maximum
PROFIBUS addresses	1–126 valid; unique per bus
Teleservice supply load	150 mA maximum
Measurement outputs	3; 0–5 V, 8-bit resolution
Measurement load current	3 mA maximum

Service-link fault isolation

Separate missing physical link from drive-project or PROFIBUS faults. X127 cabling, address ownership, cyclic telegrams and drive readiness belong to different diagnostic layers.

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04 Integration and diagnostic boundaries

Coordinated S120 drive groups

Implement configured control functions for compatible Line Modules and Motor Modules within the retained drive topology.

PROFIBUS motion-control networks

Connect the drive to a compatible master with coordinated telegrams, unique addressing and suitable bus termination.

Fast external event acquisition

Use the configured fast input terminals for probe or external zero-mark signals, with suitable shielding and evaluation.

Local drive-service access

Keep X127 accessible for authorized commissioning and diagnostics within the permitted local networking arrangement.

Terminal-reference consequence

An M1-to-M or M2-to-M jumper removes the corresponding digital-input isolation. Open inputs read low; an unconnected reference can prevent intended input operation.

Supply interruption

Digital outputs deactivate during a brief interruption of the 24 V supply. Evaluate the controlled process response rather than assuming the previous output state is held.

Address activation

Switch values 0 or 127 select parameter p0918. Valid network addresses are 1–126, and changes require POWER ON before becoming effective.

Should the memory card stay in 6SL3040-1MA00-0AA0 when a faulty control unit is returned?

Retain the card securely for the replacement, because it carries firmware, parameters and licenses. Remove it only with the unit without voltage and with ESD precautions; reconcile the retained card with the replacement hardware before starting.

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05 Replacement scope and engineering decisions

Lifecycle and replacement scope

The current manufacturing and support phase of 6SL3040-1MA00-0AA0 is unconfirmed. It is the CU320-2 DP control unit for the SINAMICS S120 drive system. Match the full article number, firmware, retained memory card and licensed drive functions. A PN control unit or different option-board arrangement requires a network and project compatibility review.

Why can a valid sensor voltage fail to operate an input on 6SL3040-1MA00-0AA0?

The input also requires the correct group reference at M1 or M2. Trace the return path as well as the signal conductor. Adding a jumper to M can restore a shared reference but removes isolation and must agree with the approved circuit design.

Does connecting a laptop to the LAN socket of 6SL3040-1MA00-0AA0 make it a PROFINET drive controller?

No. X127 is intended for local commissioning and diagnostics. Preserve its local-access restrictions and assess the installed communication option separately; do not substitute the PN variant’s interface behavior.

Controlled replacement sequence

Retain the card and project, restore the complete topology, verify firmware and license state, then prove field I/O and cyclic commands before returning the drive to service.

Technical basis

Siemens SINAMICS S120 Control Units and Additional System Components, 6SL3097-5AH00-0BP2, 06/2020. CU320-2 DP hardware ratings apply to 6SL3040-1MA00-0AA0. Drive functions depend on the installed firmware, memory card, licenses and connected SINAMICS components.

Other Siemens product references

Siemens 6ES7138-7EC00-0AA0

Siemens 6ES7155-6BU00-0CN0

Siemens 6ES7405-0KA02-0AA0

Separate product references; no substitution or compatibility is implied.