Honeywell CC-PCNT02 51454551-275

01 Select the correct execution mode

Honeywell CC-PCNT02 51454551-275 combines scheduled control, I/O servicing and peer communication within a shared processing budget. Engineering changes therefore need to consider timing, communication subscriptions and memory together.

Standard 50 ms CEE	PM I/O or Series C I/O; supported sequence functions; 5500 XU user processing budget.
Optional 20 ms CEE	Series C I/O only; separate image/license; no SCM/RCM/MR; 5000 XU processing budget.

An execution mode is a functional choice

The C300 uses the Control Execution Environment to execute the installed control strategy. Its 50 ms configuration supports PM I/O and Series C I/O link arrangements, while the separately licensed 20 ms image is restricted to Series C I/O and has reduced integration capacity. Choosing a faster base cycle is a configuration change, not a general increase in controller capacity.

Control network	Fault Tolerant Ethernet (FTE)
Device index range	1–510
I/O links	2
Time synchronization	SNTP or PTPv2
SNTP update interval	1 minute
PTP update interval	30 seconds

Scope of this review

R511 C300 performance applies to the CC-PCNT02 controller configuration. Values identified as 50 ms CEE do not apply to the optional 20 ms image. Match the installed release and firmware to the complete offered reference.

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02 Calculate peer and display demand

Parameter response rate	2500 parameters/s; 50 ms CEE
Subscribed display parameters	4000 maximum per controller
Slow request/response reads	3000 parameters/min; 50 ms CEE
Slow request/response writes	1500 parameters/min; 50 ms CEE
Incoming peer subscription rate	1000 parameters/s; 50 ms CEE
Outgoing peer subscription rate	1000 parameters/s; 50 ms CEE

Convert the requested rates

A parameter updated every 100 ms represents ten parameter evaluations per second. At 200 ms it represents five. Budget each group at its actual requested rate and add the groups; counting only the number of distinct tags misses the timing cost.

Keep incoming and outgoing budgets separate

Incoming report-by-exception filtering can reduce the counted arrival rate, while outgoing evaluation is counted before the filter. A low observed packet rate is not a reliable estimate of configured outgoing peer workload.

50 values at 100 ms	50 × 10 = 500 parameters/s
100 values at 200 ms	100 × 5 = 500 parameters/s
Combined outgoing demand	1000 parameters/s: peer-rate ceiling reached

This example is calculated for the 50 ms CEE peer-rate limit. It does not establish sufficient CPU, display, node or memory capacity for a complete project.

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03 Allocate control and memory resources

Concurrent Push/Store requests	800 maximum
Push/Store starts per cycle	200 maximum
Whole-array transfer size	8 Kbytes; 1000 float64 elements
User processing budget	5500 XU; 50 ms CEE
CEE user memory	14,852 MU; 1 MU = 1024 bytes
Tagged blocks per CEE	4095 maximum; includes CEE and platform blocks
Component blocks per CM	100 maximum
Component blocks per SCM/RCM/MR	400 maximum
Concurrent sequence paths	15 maximum per SCM/RCM/MR

Control, I/O and communication share processing

Use the C300 performance model to account for control strategy execution, each I/O link and communication. Link types, module mix, output connection rates and peer/display requirements affect demand. Do not size the controller from the number of physical I/O points alone.

Memory and block ceilings

One memory unit equals 1024 bytes. The CEE user-memory figure and tagged-block ceiling are distinct limits; reaching one is not compensated by spare capacity in the other. CEE and platform blocks also occupy tagged-block positions.

Avoid double-counting spare resources

A project must satisfy each applicable resource constraint. Free memory is not extra processing capacity, and spare tagged-block positions do not make an excessive communication rate acceptable.

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04 Understand redundant recovery

Redundant pair IOTAs	2
Redundant device indexes	Odd n and partner n+1
Redundancy cable medium	Shielded twisted-pair Ethernet

Nominal control interruption	500 ms at 50 ms CEE; 200 ms at 20 ms CEE
Initial synchronization	240 seconds, from start to completion
Commanded switchover through synchronization	500 seconds maximum elapsed time
Power-cycle switchover through synchronization	500 seconds maximum elapsed time

Keep the timing definitions separate

A short interruption describes control-processing continuity during the transfer. Synchronization rebuilds the redundancy relationship. Validate both milestones and the required downstream process behavior before treating the returning controller as a healthy spare.

Fault and integration qualifications

The nominal control-processing interruption is 500 ms for 50 ms CEE and 200 ms for 20 ms CEE. Dual I/O-link faults can take several seconds; Direct or Through EIM EtherNet/IP configurations can extend interruption to 2.5 seconds.

Pair-level acceptance

Verify the two intended IOTAs, odd/even device-index relationship, redundancy cable and final role status. Record the actual process interruption and the separate synchronized-state milestone under the approved test plan.

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05 Resolve integration and acceptance questions

Firmware features are not hardware labels

EIM and Profit Controller integration require the CC-PCNT02 extended-functionality firmware image. Hardware identity alone does not establish that those functions are enabled.

Fast image loaded; PM I/O absent	Check execution-mode compatibility before replacing the controller.
Low packet traffic; peer budget exhausted	Calculate outgoing subscriptions before report-by-exception filtering.
Control resumes; partner not synchronized	Treat process recovery and redundancy restoration as separate results.
Memory available; scheduling margin low	Review control, I/O and communication processing demand.

Technical basis

Honeywell Experion PKS C300 Controller Capacity, EP03-300-511, Version 1, July 2019. R511 C300 performance applies to the CC-PCNT02 controller configuration. Values identified as 50 ms CEE do not apply to the optional 20 ms image. Match the installed release and firmware to the complete offered reference.

Additional automation product references

Emerson KJ2005X1-BK1 12P4688X052 SE3007

Honeywell 10302/2/1

Honeywell DCOM-232/485

Separate products; no substitute or system compatibility is implied.