

sel_SY-1231.en

Industrial NTP Time Server — Selection Sheet

(Reference · Policy · Capacity)

Item	Content
Model	SY-1231-BG-T-S
Document	Selection Sheet
Version	1.1

1. Reference source status

Time reference = **GNSS 1PPS + disciplined local clock** (not PTP; not dual-clock failover).

Device state (Web / LCD)	Meaning	NTP under factory policy
LINK up	Ethernet link OK	NTP / Web possible
GNSS fix / satellites	Module positioning valid	Discipline in progress
Warm-up (synced + PPS, not yet LOCK)	Cold-start converge	May reply Stratum 2
LOCK	Reference ready	Stratum 1
Brief PPS loss (after LOCK)	PPS blip window (~≤10 s)	May still reply
Unlock / holdover	GNSS or discipline lost	See §2
No LINK	Cable / switch fault	No NTP

Do not mix layers: internal/1PPS = **ns** parameters only; Ethernet NTP = **lab clause** (LOCK + low RTT → ms-class offset reachable; see report), **no** arbitrary-field guarantee; Modbus resolution **1 ms**.

Channel	This SKU	Accept
RJ45 NTP	Stratum 1 after LOCK	LAN client; not module-ns
RS-485 Modbus	UTC incl. ms	FC03 regs 10–16

Channel	This SKU	Accept
1PPS OUT	硬件缓冲 GNSS-edge fan-out (3.3 V)	Scope 1 Hz (probe the panel 1PPS jack only)
PULSE (4-pin Pin4)	200 ms at UTC minute after LOCK (5 V)	Scope; mute if unlocked
Not included	IRIG-B, OCXO, PTP, dual Ethernet	Pick another SKU for timecode / μ s holdover

2. NTP serve policy (Web)

Web name	LCD Po1	Warm-up	After LOCK	After GNSS unlock
Lock-based (factory default)	LCK	May S2	S1	Stop (except brief PPS blip)
Lock + timed hold	TIM	Same	S1	Still S2 for $\sim \leq 5$ min (preferred for Web export / soak)
Holdover serve	HLD	Sync $\rightarrow$ reply, usually S2	Usually S2	Continues (legacy “always need packets”)

- Saved on **Network** page; persists across reboot.
- Prefer **Lock + timed hold** during large Web CSV/HTML exports.
- Optional **NTP ACL** is independent of the table above.

3. Capacity (parameters + formula)

Item	Nominal	Range	Method
Accuracy (network NTP)	$\pm 1-5$ ms	lab typical	LOCK; same LAN; software stamp; $\neq$ 1PPS
Performance	Up to 3840 NTP requests per second	sustained 3840	LOCKED; lab full load. Short peaks are not the specification
Planning	$(N=R/f_{\{}})$	—	from client poll interval
Per-source IP	≤ 8 replies/s	—	anti-abuse
During large Web export	Global cap further derated	—	shared single port with NTP
Not included	IRIG-B, OCXO, PTP, dual-port failover, IPv6, NTS, HTTPS, SNMPv3	—	entry industrial NTP (T = TCXO); SNMP is v2c read-only

Acceptance: After LOCK, LAN w32tm / sntp OK; Web **NTP Served** increases; do **not** accept “module ns” as “client ns”; offset per lab/contract method only.

4. Quick answers

Question	Answer
When is official Stratum 1?	LOCK under lock-class policy
Cold start with no time for clients?	Default allows warm-up S2 ; use timed hold for unlock behavior
How many clients?	$(N=R/f_{\{ \}})$; $(R=3840)$
Where does this sit?	Entry cabinet NTP — not PTP / not 10k-class room appliances

Filename Selection Sheet. Interfaces: Industrial IF Protocol; operations: User Guide. Firmware as shown on device.