Comparison Chart: SNAP 4-Channel and High-Density Digital Modules

The following table compares 4-channel and high-density SNAP digital I/O modules.

Item	SNAP High-Density Digital Modules	4-Channel SNAP Digital Modules
Number of points on module	16 or 32, depending on module	4
Isolation and fusing	**16-point input modules:** Each point is optically isolated from other points on the module. **32-point input and output modules:** The module is divided into four groups of eight points. Groups are isolated from each other, but points within a group are not isolated from each other. Groups must be externally fused.	**Input modules:** Each point is optically isolated from other points on the module. **Most output modules:** Points are not isolated from each other. Points share a common fuse. For isolated modules, see the *SNAP Digital Ouput Modules Data Sheet* (form #1144).
Status LEDs	None; use the handheld OptoTerminal-G20 for module diagnostics and commissioning, or for 32-point modules, connect to an optional breakout rack.	One for each point, located on top of module.
Polling time from I/O processor to module[1]	2–30 ms typical[2]	0.5–2 ms typical[2]
Module turn-on/off time[1]	16-point input modules: 15–20 ms 32-point input modules: 6 ms Output modules: 100 microseconds	Varies by module. Examples: • SNAP-IDC5-FAST: 25 microseconds • SNAP-IDC5: 5 ms turn-on, 15 ms turn-off
On/off status	Yes	Yes
Input latching	Yes	Yes
Counting on digital input modules	Counting occurs on the module.[3] Counting is available with SNAP-PAC-R1[4], SNAP-PAC-EB1[4], and SNAP-PAC-SB1 processors. Counting speeds: On 32-point modules, 0–50 Hz @ 50% duty cycle On 16-point modules, 0–25 Hz @ 50% duty cycle (Speed depends on module; see specifications for each part number.)	High-speed counting occurs on the I/O processor (brain or on-the-rack controller) and can be configured for any point. (High-speed counting is available on SNAP-PAC-R1[4], SNAP-PAC-EB1[4], and SNAP-PAC-SB1 processors.) Counting speed varies based on the processor and the speed of the module. Example: SNAP-PAC-EB1 brain with SNAP-IDC5-FAST: up to 20 KHz
Watchdog timer	Firmware 8.1 and higher, yes. Firmware 8.0 and lower, no.	Yes
Pulse generation	Yes	Yes
On-pulse, off-pulse, and Period measurement	No	Yes
Frequency	No	Yes
Totalizer	No	Yes
Digital events	Firmware 8.1 and higher, yes. Firmware 8.0 and lower, no.	Yes

1 Actual turn-on and turn-off times equal the polling time plus the module time.
2 Polling time varies based on the SNAP I/O processor (brain or on-the-rack controller), processor configuration, and Ethernet host communication activity.
3 The high-density digital module uses a 16-bit counter, but the processor used with the module accumulates counts to 32 bits by periodically getting and clearing the module's counts and adding to current values. Update time varies based on number of modules and Ethernet communication demands.
4 Including -FM (Factory Mutual approved) and -W (Wired+Wireless) models.